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**2020 CENSUS: CHALLENGES FACING THE BUREAU
FOR A MODERN, COST-EFFECTIVE SURVEY**

HEARING

BEFORE THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE
ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

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2020 CENSUS: CHALLENGES FACING THE BUREAU FOR A MODERN, COST-EFFECTIVE SURVEY

MONDAY, APRIL 20, 2015

U.S. SENATE,
COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Committee met, pursuant to notice, at 3:01 p.m., in room SD-342, Dirksen Senate Office Building, Hon. James Lankford, presiding.

Present: Senators Johnson, Lankford, Ayotte, Carper, McCaskill, and Peters.

OPENING STATEMENT OF SENATOR LANKFORD

Senator LANKFORD. This hearing will come to order. I wanted to do an opening statement, and then Senator Carper is on his way. Senator Johnson is also on his way, and so as they slip in, we will recognize them at the appropriate time as well. I want to have this Committee come to order so we can begin this process on time today.

I would like to welcome everyone to this afternoon's hearing on the "2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey." I will begin by recognizing myself for this opening statement.

Director Thompson, let me first say to you on behalf of the Committee, we would like to express all of our condolences on the loss of Lawrence Buckner. We lost him in the line of duty on April 9 in Census Bureau headquarters in Suitland, Maryland. Know that our thoughts and prayers are with you and the agency as you all walk through this time together. It was a senseless act of violence, and we will all walk through it together with his family.

The United States Constitution mandates that an actual enumeration be made within 3 years after the first meeting of the Congress of the United States and every subsequent 10 years.

As the 2020 decennial census approaches, I appreciate the fact that the Census Bureau is actually taking steps to prepare since, as we have seen in the past, a failure to do so can drastically increase costs for the Federal Government and ultimately the taxpayers. It is laudable that the Bureau is working toward implementation of an innovation strategy with the goal of saving the taxpayers' money.

However, as the Government Accountability Office (GAO), has noted, although progress has been made since 2010, more work is needed to ensure that technology systems are fully operational and information remains secure and confidential.

While it is important that we have information regarding the makeup of this Nation, it is also important that we safeguard the privacy of the American people. Questions asked of citizens of this Nation must be cost-effective and should not be overly intrusive. When the questions go too far and exceed what we should ask from the U.S. Government, it is invasive and fuels an environment of distrust.

It is important that we examine not just the preparation for the 2020 Census itself, but also the manner in which the Census and other surveys, like the American Community Survey (ACS), are being conducted, as well the substantive nature of the questions asked. I look forward to the testimony, and I will acknowledge the Ranking Member Senator Carper for his opening statement when he arrives as well.

Let me introduce the witnesses. Then I am going to swear the witnesses in as we go from here.

John Thompson is the Director of the Census Bureau. Before his appointment as Director, Mr. Thompson was the President and Chief Executive Officer (CEO) of the National Opinion Research Center (NORC). Thanks again for being here.

Robert Goldenkoff is the Director of Strategic Issues at the GAO. Mr. Goldenkoff leads reviews of the governmentwide civil service reforms and ways of improving the cost-effectiveness of the Federal statistical system.

Carol Cha is the Director of Information Technology Acquisition Management Issues at the Government Accountability Office. Before joining GAO, Ms. Cha led numerous reviews of information technology (IT) systems at Federal agencies, including the Departments of Commerce, Defense (DOD), and Homeland Security (DHS).

Thank you, all three of you, for being here, and thanks for your testimony, both your written testimony and the oral testimony that you are about to begin as well.

I would like to ask unanimous consent that Senator Johnson's statement be included in the record.¹ Without objection, so ordered.

It is the tradition of this Committee that we swear in all witnesses, so would you please rise and raise your right hand? Do you swear that the testimony you will give before this Committee will be the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. THOMPSON. I do.

Mr. GOLDENKOFF. I do.

Ms. CHA. I do.

Senator LANKFORD. Thank you. You may be seated.

Let the record reflect that the witnesses have answered in the affirmative.

I will ask that each of you will give your testimony. You have plenty of time to be able to do that. We are glad that you came and

¹The prepared statement of Senator Johnson appears in the Appendix on page 33.

you came well prepared on that. When Senator Carper comes, I will recognize him for an opening statement. That may be in between one of you, but I will not interrupt you in the middle of your statement if he comes in during that time.

Mr. Thompson, you are first. Thank you. We would be glad to receive your testimony now.

TESTIMONY OF HON. JOHN H. THOMPSON,¹ DIRECTOR, U.S. CENSUS BUREAU, U.S. DEPARTMENT OF COMMERCE

Mr. THOMPSON. Thank you, Senator Lankford. I would also like to thank Chairman Johnson and Ranking Member Carper and the Committee for allowing me this opportunity to testify on our preparations for the 2020 Census.

Before I testify, however, I would like to take a moment to honor a true hero, Officer Lawrence Buckner, who lost his life protecting all of us at the U.S. Census Bureau. We are profoundly saddened by the loss of Officer Buckner. No one can ever measure the loss to his family. But our hearts are full, and the Census Bureau extends its deepest sympathy to his wife, Linda, his son, Lawrence, and his family. Thank you, and we mourn this tragic loss.

I will now proceed with my testimony. The Census Bureau is fundamentally changing the way we will conduct the decennial census, which is the largest civilian mobilization in the United States. These efforts began earlier this decade by establishing a goal to design and conduct the 2020 Census to cost less per housing unit than the 2010 Census, while maintaining the highest levels of quality.

The Census Bureau then identified the major cost drivers, and with the Congress' support, we began researching and testing major innovations oriented around technology and the strategic use of information to rein in these cost drivers.

Today I will describe our work in four key innovation areas that will lead to the reengineered 2020 Census. We believe that investing now in these four key innovation areas can yield up to \$5 billion in savings relative to repeating the 2010 Census in 2020. The tests we conducted in 2013 and 2014 and the four tests we are conducting this year are informing the 2020 Census design decisions, which we will deliver later this year. I will discuss how these tests informed our planning and how the next 2 years position us for the critical end-to-end test in 2018. The alternative is repeating the 2010 Census, which would forfeit the savings of \$5 billion.

There are four key areas of innovation and potential savings:

First, better address validation. By using the U.S. Postal Service (USPS) and other information sources, including aerial imagery, we plan to avoid walking every street in the Nation to validate the address list. We can save \$1 billion through these efforts.

Second, better response options. By making responding to the Census more convenient through the Internet, phone, or by mail, we can potentially save approximately \$550 million.

Third, better use of existing information. By using existing government and commercial information to reduce the need to follow-

¹The prepared statement of Mr. Thompson appears in the Appendix on page 38.

up with non-responding housing units, we can potentially save \$1.2 billion.

Fourth, better field operations. By using technology to manage and track cases, as well as to route the Census takers who will be using smartphones and tablets rather than pencil and paper, we can potentially save \$2.3 billion.

As I noted above, the total savings we expect from these four areas of innovation is \$5 billion. I will now discuss each of these innovation areas in more detail.

The foundation of an accurate Census is an accurate address list, which includes both the address and the geospatial location. Over the past few years, there have been tremendous technological advances in the geospatial field. More and more data become available, meaning that we no longer have to validate every address by a personal visit. We are now examining how to refine our procedures to integrate private sector data and services to update our geospatial assets. Specifically, we want to purchase address, road, and satellite imagery instead of physically walking the entire United States.

This year's Address Validation Test encompasses two components that will also bring insights into how we can build a better address frame. The first component is to assess the ability of statistical models to predict change, such as new roads, new housing units, or other changes. The second component will provide measures of the current accuracy of our address list and our geospatial database.

The second area of innovation is developing better response options. We are moving away from relying solely on the mailed questionnaire and enumerator to count every household. We are expanding options for people to self-respond by the Internet, at home or on a mobile device remotely, as well as by telephone. However, it is important to note that paper will continue to be an option.

We want to make the Census as mobile and convenient as possible. This means allowing respondents to answer the Census without entering a Census ID. In fact, we anticipate that by promoting the Internet option, there will be a dramatic increase in the number of these responses in 2020. For this to work, we must validate these responses quickly in real time.

The third area of innovation is better use of existing information. The increased use of administrative records from other Federal and State government agencies and third-party commercial data can reduce costs. The use of administrative records is not new to the decennial census, and we want to expand our use of these data for the 2020 Census. We are exploring several options, and two of the most promising are using those data to help manage and even reduce the field workload.

The two most significant areas of innovation and cost savings are removing vacant units and using existing information on persons to enumerate occupied housing units, thereby removing them from the non-response follow-up operations.

For example, during the 2010 Census, the field workload included 50 million housing units. Each housing unit received at least one in-person visit. Of these, 19 million were either vacant or no longer existed. By using administrative data from the Postal

Service and other agencies, we believe we can identify these vacant and non-existent housing units and remove them from the in-person follow-up workload, achieving substantial cost savings.

Administrative records may also us to enumerate occupied housing units rather than enumerate them directly, and I would like to have a conversation with the Congress about this potential step.

Ultimately, we will have to send Census takers into the field to enumerate the remaining non-responding households, which underscores the importance of the fourth area of innovation: better field operations. As part of the research and testing, including the 2015 Census test in Maricopa County, Arizona, we are examining our field staffing structure and testing several technological innovations. The goal of reengineering our field operations is to use technology more efficiently and effectively to conduct and manage the 2020 Census field workload.

In previous Censuses, the entire process, both data collection and management, was conducted by paper and pencil. To measure progress, we had to rely on daily in-person meetings with field staff and had no ability for real-time communication. This paper-based data collection process was a significant contributor to the overall cost increases of the previous Census field operations.

We are developing a sophisticated operational control system that will manage tasks and assignments in real time. We intend to send our interviewers out with mobile devices rather than paper and pencil. They will use these devices to collect responses and report their time and attendance instead of using the paper forms as in 2010. And we will have real-time measures of progress.

Our goals are to incorporate operational best practices, including the optimization of daily assignments, intelligent routing, and real-time issue management. We are working with the private sector as we build these systems.

The four key innovation areas represent significant cost savings that can only be achieved if we get the opportunity to complete significant testing and development in the next 2 years. We have very little time left to test and ultimately important these innovations before we reach 2018, when the cost of the Census will rise. 2018 is also important because we must conduct a complete end-to-end test so we can be confident that when we go live in 2020, all of our systems will work.

To realize the most modern decennial census ever, we have to stay on track. That is why next year is crucial to the 2020 Census for the development of the key systems to support the infrastructure to handle data collection and processing.

One of the critical activities in 2016 is the continued development of our Census Enterprise system that will support not just the 2020 Census but all of our data collection activities at the Census Bureau. We will no longer build a system that we will throw away after the decennial, as we have for each previous Census. Known as the Census Enterprise Data Collection and Processing (CEDCaP) program, we are moving to a smarter, more cost-efficient, enterprise-level strategy to manage core information technology aspects for all of our Censuses and surveys.

At the core of this modern system that we are building is our continued commitment to protecting privacy and confidentiality of

individuals' information. Confidentiality and privacy is the very core of the Census Bureau's mission and deeply ingrained in our culture. We protect the information the public provides with a robust, comprehensive, and layered cybersecurity system. We are actively engaged with the National Institute of Standards and Technology (NIST) and the Department of Homeland Security on these efforts.

From the Census Enterprise system and cybersecurity to each test, each activity plays a significant role helping the Census Bureau design an accurate and cost-effective 2020 Census. Scaling up to the decennial census is complex, ranging over many years and many operations, which must be synchronized to meet our ultimate mandate. The \$5 billion in savings cannot be achieved without rigorous testing designed to inform development of the systems and operations. We need your support to achieve these goals.

Thank you, and I hope this update has been informative, and I look forward to answering your questions.

Senator LANKFORD. Mr. Goldenkoff.

TESTIMONY OF ROBERT GOLDENKOFF,¹ DIRECTOR OF STRATEGIC ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. GOLDENKOFF. Thank you, Senator Lankford. I would like to thank you and Chairman Johnson and Ranking Member Carper for the opportunity to be here this afternoon to discuss the Census Bureau's progress in developing a more cost-effective approach to counting the Nation's population.

As you know, this month the Bureau marked the midway point in the decade-long countdown to Census Day 2020, giving greater urgency and importance to the testing, operational, and procurement decisions that it will make in the months ahead. For example, this September, the Bureau plans to announce its preliminary design for the 2020 Census, and two key field tests to inform that decision are currently underway.

The cost of the decennial census has continually increased during the past 40 years, in part because the Nation's population has grown steadily larger, more diverse, and increasingly difficult to enumerate. At about \$13 billion, the 2010 Census was the costliest U.S. Census in history and was 56 percent more expensive than the \$8.1 billion spent on the 2000 Census in constant 2010 dollars.

In my remarks today, I will discuss the Bureau's progress in implementing four critical cost-savings initiatives and their associated challenges. The four areas include: using data previously provided to the government to help enumerate the population; new processes for updating the Bureau's address list and maps; reengineering field operations; and maximizing self-response.

As the Director said, combined, the Bureau estimates that these efforts could generate up to \$5 billion in cost savings and enable the Bureau to conduct the 2020 Census at a total life-cycle cost of around \$12.7 billion, or about the same as the 2020 head count.

With respect to using data previously provided to the government, the Bureau estimates that this initiative, sometimes referred

¹ The joint prepared statement of Mr. Goldenkoff and Ms. Cha appears in the Appendix on page 45.

to as “using administrative records,” could save as much as \$1.2 billion by reducing the need for costly, labor-intensive follow-up work with non-responding households.

The Bureau is testing the extent to which it can use Federal data such as Social Security and Medicare records as well as records from State, local, and tribal governments and commercial sources to reduce the number of in-person visits, local Census offices, and operations needed to ensure a complete count.

However, before it will be able to realize cost savings or improvements in data reliability from the use of these records, the Bureau will first need to address such questions as the quality of the records and whether they will meet the Bureau’s needs. For example, while race and ethnicity data are collected in the Census, certain records available to the Bureau do not include this information.

To reduce the cost of its efforts to update its address list and maps by as much as \$1 billion, the Bureau is testing whether it can rely mainly on data from government agencies at all levels to share and continuously update their address list and street data with the Bureau.

In prior decennials, thousands of Bureau field staff walked almost every street in the Nation as one of several operations to update the Bureau’s address list. Key questions here include which map and address data sources are the most cost-effective and whether the Bureau can accurately target its address canvassing efforts.

With respect to improving the management of its field operations, the Bureau is examining, among other things, how best to automate enumerators’ work, which could save an estimated \$2.3 billion. However, the Bureau must first resolve whether it can fully test all the systems and procedures in time for 2020.

A fourth cost-saving area involves maximizing self-response through enhanced outreach and an Internet response option. This effort could reduce the need for enumerators to visit non-responding households and save around \$500 million. However, among other issues, the Bureau has yet to establish reliable estimates of how much it will cost to deliver an Internet response option and does not have integrated schedules for completing the work.

The Bureau has identified or acknowledged many of the challenges and questions associated with these four initiatives and is working to address them. Because of their interrelated nature, shortcomings in any one area could impact the success of the others and thus put estimated cost savings and the accuracy of the count at risk.

Going forward, it will be important to ensure the research and testing for these initiatives continue as planned to inform key design decisions later this year.

This concludes my prepared remarks, and I will be happy to answer any questions that you may have.

Senator LANKFORD. Thank you.

Ms. CHA.

TESTIMONY OF CAROL R. CHA,¹ DIRECTOR OF INFORMATION TECHNOLOGY ACQUISITION MANAGEMENT ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Ms. CHA. I would like to express my thanks to you, Senator Lankford, to Chairman Johnson, Ranking Member Carper, and Members of the Committee for inviting me to testify today.

IT implementation will be a key factor in whether the Bureau will be able to adequately contain the costs for 2020. The Bureau's past efforts have not always gone well. Our work on the 2010 Census highlighted the mismanagement and major cost, schedule, and performance issues associated with several critical IT investments, one of which was intended as a cost-savings measure but instead increased the costs of the Census by up to \$3 billion.

For 2020, the Bureau will rely on an enterprise-wide IT initiative called "CEDCaP" to deliver the systems and IT infrastructure needed to carry out its cost-savings initiatives.

For example, CEDCaP is planning to deliver the online survey instrument and a cloud computing solution to support an Internet response option. For field reengineering, the program is planning to implement a new system to track and manage field work. It will also test the use of mobile devices, either government-issued or employee-owned, for field data collection.

Recent estimates put the program's cost at about \$548 million through 2020. Given the Bureau's prior and existing challenges, we highlighted CEDCaP as part of a new entry onto this year's GAO high-risk list as one of a handful of major IT investments in need of the most attention, and we plan to initiate an in-depth review for this Committee later this year on CEDCaP.

Based on our work to date, I would like to highlight two key challenges this afternoon regarding the Bureau's IT plans for 2020.

First, the time constraints. September's decision is expected to drive the business requirements for CEDCaP's systems and infrastructure. This milestone, which has already been delayed by a year, cannot afford to slip further. However, as we reported earlier this year, the Bureau had not yet addressed how two critical inputs into this decision would be addressed. These inputs relate to the Internet self-response rate and the IT infrastructure security and scalability needs. And if they are not adequately addressed by September, it could lead to system rework downstream, eating into an already narrow schedule margin.

By October 2018, the Bureau intends to begin end-to-end testing to validate that CEDCaP's systems are ready to go live on Census Day. This gives the Bureau roughly 3½ years to develop and integrate planned systems, which may seem like a lot of time but is not based on past performance, and a lack of experience implementing technologies at the scale of the 2020.

The October 2018 milestone date is a prudent one for planning purposes. If this date slips to the right and system testing is compressed, then we very well could have another HealthCare.gov on our hands.

¹The joint prepared statement of Ms. Cha and Mr. Goldenkoff appears in the Appendix on page 45.

In order to decrease the risk of system rework downstream and protect the October testing date, the Bureau should fully implement the recommendations we made to ensure that this September's decision will be adequately informed.

The second key challenge is the Bureau's current IT posture. The Bureau has made important progress to strengthen and institutionalize IT governance and requirements management, and as a result, the Bureau is better positioned to manage and oversee its IT investments than in prior decennials. However, more work is needed to address critical IT workforce gaps and information security deficiencies.

In particular, the Bureau does not have the requisite competencies in enough numbers to meet IT workforce needs. These skills gaps include systems engineering, IT security, cloud computing, and Internet data collection, to name a few.

To the Bureau's credit, it is aggressively working to close these gaps. However, if they do remain open, the Bureau's ability to deliver CEDCaP effectively will be hampered.

In addition, the Bureau does not yet have a comprehensive information security program, something we first reported on in January 2013. Among other things, the Bureau had not effectively implemented appropriate access controls to protect its systems from intrusion. For example, the Bureau did not adequately encrypt Title 13 data in transmission and at rest, nor did it use secure protocols to manage its IT infrastructure, which placed sensitive data such as administrative user accounts and passwords at risk of compromise. As a result, we made 115 recommendations to address these control deficiencies. As of today, the Bureau has fully addressed 19 of them.

Given that the Bureau is considering using IT systems to collect the public's personal information in ways that have not been used in the prior decennial, implementing our security recommendations must be a high priority.

In summary, while the Bureau is in a stronger position to manage its IT investments than in the 2010 Census, it is also starting development work much later in the decade. The margin for error is slim. And the current workforce and information security gaps add significant risk to the 2020 Census. Moving forward, swift actions to fully implement our open recommendations must be taken. Doing so will improve the Bureau's ability to deliver on its IT plans and realize cost savings.

That concludes my statement, and I look forward to addressing your questions.

Senator LANKFORD. Thank you, all of you.

And as promised, Senator Carper is here and will give an opening statement.

OPENING STATEMENT OF SENATOR CARPER

Senator CARPER. Thanks so much, Mr. Chairman. What I would really like to do is get right into the questions. It is nice of you to yield to me.

I would say that I would like to ask that my statement be made part of the record,¹ unless one of my colleagues objects.

Senator LANKFORD. Without objection.

Senator CARPER. All right. Good.

Just very briefly, we have been doing this for 200-and-some years—not us here. We have not been in the Senate that long. But we have had Senators interested in trying to get a good Census and trying to do it in a cost-effective way.

A lot of people think that we in Washington cannot organize and run a good three-car funeral procession. And we have a great opportunity here to demonstrate, by careful planning, smart funding, good oversight, that we can do some amazing things with the technology and the tools and the people that we have. It is just really imperative that we deliver. And this oversight hearing today is in part designed to make sure that you can deliver and that we will be proud of the work that is done in the next 5 years.

Thank you.

Senator LANKFORD. Thank you.

Let me address just a few questions, and then we will continue moving through questions here on the dais as people arrived.

Mr. THOMPSON, you had mentioned that there are some things you need to talk to Congress about, about vacant units. Is there something you are needing from Congress directly, clarification or statutory changes?

Mr. THOMPSON. Thank you, Senator. There is, but let me clarify my statement first. So in collecting the information from our non-responding households to the Census, we are testing ways in which we can use administrative records to enumerate occupied housing units instead of direct in-person enumeration. And we want to make sure that we are on the same page as the Congress in terms of taking this step, if we should propose to take this step.

Now, with regard to help from the Congress, there is a data set—it is called the National Directory of New Hires (NDNH)—and it is maintained at the Department of Health and Human Services (HHS), and it would help us greatly in our program, and we would need some legislative changes to have access to that file.

Senator LANKFORD. OK. What other data do you need here? Obviously there are multiple different databases between the IRS, Social Security, Department of Labor (DOL); HHS has it, you have it. There are lots of data sets around there. I guess the question for me initially would be: Which particular data sets do you want to be able to use? And, second, are any of these agencies charging Commerce to be able to have access to that data?

Mr. THOMPSON. Thank you. So you have named some of the data sets that we already have access to. We are also in the process of acquiring the Supplemental Nutrition Assistance Program (SNAP) records State by State and the Women, Infants, and Children (WIC) program records so we can put these together in a very pri-

¹The prepared statement of Senator Carper appears in the Appendix on page 35.

vate way, protecting privacy, and using them and research them as we proceed with the Census.

We are not being charged by the other agencies for these data sets. In fact, the Secretary of Commerce has great authority to ask for these records in conducting the job of carrying out the Census.

Senator LANKFORD. OK. We had an extensive conversation here at this same Committee room just a couple of weeks ago about the Death Master File (DMF), and that we have about 6.5 million people that are listed in our systems right now that are over 114 years old, I believe—112? Excuse me. A lot younger than that, 112 years old, when we actually think there are less than two dozen in the United States. So we have some problems in those data sets that are out there. How are you going to try to address that to make sure we do not get individuals into the system that are not really alive anymore?

Mr. THOMPSON. Part of our research program, is to look at which records can be effective and in which combinations of records that link together. So we do need to do an extensive research program to feel comfortable before we use administrative records. And we are looking at those very things right now.

Senator LANKFORD. OK. That is one of the aspects that we will need to resolve, both how that is resolved within Census and then obviously we would like to know that information so we can get a chance to share that with other entities within the Federal Government, because as I mentioned, with the Death Master File, that has extensive millions of names on it that are no longer with us anymore. We have to be able to resolve that.

Mr. Goldenkoff, you have a very interesting statement, which I have read and seen multiple times before. If we can put all of these different aspects into place, all these different innovations, we could save \$5 billion. And so by saving \$5 billion, we would spend the same as we did last time.

Now, if I sold you a pizza for \$10 and said I am going to sell you the next one for—I am going to save \$5 for you, and it is going to be the same cost, I am not sure you would think that was a savings. So I am working through the math here between how we save \$5 billion, yet we do it for the same cost as we did last time.

Mr. GOLDENKOFF. Well, part of it is a unit cost, roughly \$100 per housing unit. So you would expect to see some cost increase because the population—

Senator LANKFORD. Right, because of the number of people.

Mr. GOLDENKOFF. Exactly. The workload is more. So that is why we look at the unit cost, and it works out roughly the same, about \$100 per housing unit.

Senator LANKFORD. Is there a way to be able to save unit cost, that the unit cost goes down? Or are we tapped out? I think it is \$97, the last stat that I saw, per person to be able to do this. Is there a way to be able to save money per unit cost rather than saying we had a growing population, we assume it still costs \$97 per person to do this.

Mr. GOLDENKOFF. Well, there is always a cost-quality tradeoff. You can always conduct a count for less. The question is: How accurate is it going to be? And that is always—that has to be weighed. I mean, the Constitution requires that everybody be

counted, and so that is the gold standard. And so because of the increasing complexities of counting everybody, the cost goes up from Census to Census. The Census Bureau needs to work harder each decade just to stay in place.

Senator LANKFORD. So going back to something Ms. Cha mentioned before, in 2010 we had a \$3 billion process of innovation that came through. I think that was dealing with the handhelds—is that correct?—is what it circled around.

Ms. CHA. That is correct.

Senator LANKFORD. So a \$3 billion cost. A \$13 billion program really cost \$10 billion because we had a \$3 billion program that ended up not being fully implemented and we lost there. So what I am trying to figure out is we save \$5 billion, however we are still at basically the same cost as we did last time per person, and we had a \$3 billion failure last time.

Mr. GOLDENKOFF. That is correct. And I also need to say that, GAO has not verified these cost estimates, so we are relying for now on the Bureau's estimates. We will probably be doing work in the future where we will look into the validity of those estimates.

Senator LANKFORD. Is there a difference in the American Community Survey and the cost per person in that piece versus the every-10-year-Census piece, cost per person?

Mr. GOLDENKOFF. I do not have that information.

Senator LANKFORD. Mr. Thompson, do you happen to know that number, cost per person, the American Community Survey that we do every quarter basically?

Mr. THOMPSON. I am sorry. I do not have that figure.

Senator LANKFORD. Do you think it is higher or lower? Just a ballpark on that.

Mr. THOMPSON. I think it is probably higher for the American Community Survey, somewhat.

Senator LANKFORD. OK. I am going to keep going on questions, and I will come around for a second round here in just a moment. I will recognize Senator Carper, the Ranking Member, for the next set of questions.

Senator CARPER. Why don't I just go last? I would like to hear the others.

Senator LANKFORD. OK.

Senator CARPER. Then I will just come in at the end. Thank you.

Senator LANKFORD. Senator Ayotte, you came in next after that.

OPENING STATEMENT OF SENATOR AYOTTE

Senator AYOTTE. Thank you. Thank you all for being here.

Here is what I wanted to understand. I know that you have taken steps to use commercial mapping information in putting together the proposal for the upcoming Census. And as I understand it, you are using portions of that commercial data to fill in gaps, but you still would be creating essentially your own product of the map that you need for this. What I wanted to understand is why we do not further use the commercial products that may be available. Why is the Request for Proposal (RFP) limited to filling in gaps rather than relying more heavily on commercial, already existing products where they already have? I know that their prod-

ucts may not be able to fully do this, but could do a significant amount of it. So what is the thinking there?

Mr. THOMPSON. Well, thank you, Senator. We have been talking with a number of the companies in that field. We have an RFP, as you noticed.

Senator AYOTTE. Right.

Mr. THOMPSON. We want to evaluate the quality of the materials that are available in the private sector and where they will work and save us from walking the ground where we intend to use them.

We also will be having another RFP coming out soon which is going to be asking the private sector for services such as automated change detection and the like.

So we are looking forward to seeing the responses to the RFP, and we are looking forward to using commercial data where it is available.

Senator AYOTTE. So couldn't commercial data be used in a much broader capacity than what your current RFP suggests?

Mr. THOMPSON. I did not think that we were trying to limit the commercial data through the RFP process.

Senator AYOTTE. So are you open to—for example, if commercial data for mapping would get you—I am just using a number—90 percent there and you had to fill in the rest to complete your product, are you open to doing that?

Mr. THOMPSON. Yes.

Senator AYOTTE. OK.

Mr. THOMPSON. Yes.

Senator AYOTTE. It seems to me, I mean, so many of us use this data in so many capacities, and so always re-creating the wheel, this is a place where I know you are already taking important steps to do this, but we could save a lot of money for the public.

Mr. THOMPSON. Yes.

Senator AYOTTE. I wanted to follow-up on some of the GAO findings. What are the issues that you are going to be able to—one of the big things, I think, that overlies all of this is transparency in costs and measuring and achieving savings. How do you think that you will meet the transparency goals so that we can actually understand how much we are paying for things in a much more open way so that when we have our oversight function we do not end up in a position where we are not having the right type of oversight?

Mr. THOMPSON. Well, thank you. We are committed for this Census and the 2020 cycle to being very open and transparent with our methods. I think we have a good relationship with the GAO. We certainly hope that they will—and we know they will—look carefully at what we are doing.

I should also note that once a quarter we have a project management review in a public way for the 2020 program, and we webcast it. We make it available and we want everyone to see how we are planning and what we are doing, and we are trying to be very transparent with that.

Senator AYOTTE. So, Ms. Cha, thank you for your testimony, and I think it is an eye opener for all of us when we hear potential analogies to HealthCare.gov, because obviously we all got an earful from our constituents and others over that rollout.

What are the most significant steps that we could take in this Committee to make sure that, in fact, this IT procurement goes properly? One of the issues that we have I think overall in the government—it is not just unique to this. We are particularly bad at this. Throughout the government we have had numerous occasions where we have invested a lot in a particular system, and we have not ended up with the system that we hoped for or the costs went way over. So I just wanted to hear from your perspective. If you were sitting in our shoes, what would you think that we should do most to make sure that the warnings that you have given us do not occur?

Ms. CHA. Well, Senator, your continued and sustained oversight of the 2020 Census and particularly the CEDCaP program will be vital. These large and complex IT modernization programs are challenging, and it is one of the reasons why we cited CEDCaP as part of a new GAO high-risk entry this year in terms of improving IT management governmentwide. These programs rarely meet cost schedule and performance goals, and we have an opportunity here. The train has not left the station. And so, when we look at CEDCaP and we look at the complexity and the risks associated with this program and you layer on top of that the key challenges that I identified in terms of the time constraints as well as the risks associated with the IT workforce gap and the information security control deficiencies, there is quite a bit of risk here. I think there is an imbalance.

And so to the extent that that the Bureau can focus on implementing a simpler solution, that would, I think, set the Bureau up for success relative to IT.

Senator AYOTTE. So as I see it, I hear you saying that the solution they are proposing may be too complex to achieve during this period with the workforce that they have.

Ms. CHA. That is correct.

Senator AYOTTE. And is there anything more we should be doing also on the workforce gap issue? Which, frankly, is something that we face across government agencies, because this is a highly competitive field.

Ms. CHA. Well, again, it is that continued monitoring on your end. I do want to say that the Bureau is aggressively looking to close these gaps that they do have. However, if these gaps are not effectively closed, then I think the Bureau needs to, again, continue to identify ways to decrease the complexity of the CEDCaP initiative.

Senator AYOTTE. So my timing is up, but I would like to hear what your response would be to that about making this a simpler process so it could be easier to achieve.

Mr. THOMPSON. Certainly, Senator. So I think I would coin a phrase from our Chief Information Officer (CIO), and it is something that worked very successfully in the 2000 Census when we did deliver our systems on time and on schedule, and that is, we are innovating but we are not inventing. So our plan is to use existing technology and existing expertise and innovate by using that intelligently.

So, for example, we are going to be using a smartphone, but the smartphone already exists. We are not going to invent one like we tried to invent a handheld the last time.

We are using optimized systems for our routing, but we are not building—those systems already exist, and a number of people have very good ones, including the United Parcel Service (UPS). So we are trying to take advantage of what is existing and not trying to invent new things.

Senator AYOTTE. Thank you.

Senator LANKFORD. Senator Peters.

OPENING STATEMENT OF SENATOR PETERS

Senator PETERS. Thank you for being here and for your testimony. As Senator Carper mentioned, it is important to get this right, and certainly it is a monumental undertaking to be able to count every individual in this country, and this is not an easy task. I appreciate that. But it is a very important task that you undertake, particularly from a public policy standpoint, so that we can make sure folks are protected, have resources, allocations that are done properly, so my hat goes off to you.

I represent an area in Michigan, however, that has a very large population of folks from the Middle East and from North Africa. Mr. Thompson, I sent a letter to you earlier this year with a couple of my colleagues talking about that issue and the fact that that classification is not part of the Census. And as you know, it can be problematic because if you are not on the Census, you do not have access to some voting rights protections, including access to ballots in your home language to be able to vote and exercise that right. Also, it is difficult for researchers if we do not have that type of Census information to understand potential health disparities that may exist in the Middle Eastern population in Michigan and other places around the country, as well as employment discrimination and a whole host of things that we need to look into, and this would provide accurate data.

My understanding is that you are going to test that category for Middle Eastern descent as well as North African. I appreciate your prompt response to our letter a ways back, but I want to take this opportunity to get an update from you as to where you are. I know when you responded to my letter, you mentioned you were going to be reaching out to stakeholders in the spring and consulting with community leaders within that community to get some assessment as to how you would proceed. Could you give me an update, please, on where we stand on that and how you look to proceed?

Mr. THOMPSON. Certainly. So we have been having ongoing discussions with various members of the Middle Eastern and North African community, and we are testing including that categorization as part of our race and ethnic questions, and that test will take place this fall.

We are looking forward to having an expert meeting of various Middle Eastern and North African scholars this spring so that we can really come up with a definition, if you will, of Middle Eastern and North African that everyone agrees to so we can use that as part of how we explain it when we conduct the Census. So we are on track.

Senator PETERS. Well, that is good to hear. I appreciate that.

Have you heard from any other Americans or other organizations about a lack of representation in the Census? Is this unique to Middle Eastern community, or are there others that you are working on?

Mr. THOMPSON. In terms of the—

Senator PETERS. Classification.

Mr. THOMPSON. Classification of Middle Eastern and North African. We have heard from other constituents on other aspects of the question, but for inclusion, it has been basically the Middle Eastern and North African.

Senator PETERS. So that is where your focus is, it is going to be on this going forward?

Mr. THOMPSON. Yes.

Senator PETERS. Great. I have many constituents, as you can imagine, given the large size of our community in Michigan, that are very passionate about this, and I understand that you have received thousands of inquiries from the community. Have you been responding directly? Or how can I respond to my constituents as to how you are listening to them and the response that they will receive?

Mr. THOMPSON. I think what you are referring to is a Federal Register notice we put out that announced our plans for this fall test, and we received well over a thousand recommendations that we include in that test the Middle Eastern and North African category. And we are responding by a comment to the Federal Register notice to those recommendations that we got.

Senator PETERS. OK.

Mr. THOMPSON. Now, we will group them together because many recommendations said the same thing.

Senator PETERS. Right. So you will be summarizing that in the Register.

Mr. THOMPSON. Yes.

Senator PETERS. And the folks we could refer them to that as well as get back—

Mr. THOMPSON. Yes.

Senator PETERS. Well, I appreciate that. The other issue that I am concerned about deals with the homeless population. I know you are reaching out to folks who are not going to be at an address to count to make sure that they are represented. In fact, in Michigan, Washtenaw County is one of 71 communities that participates in Zero: 2016, which is a campaign to end veteran and chronic homelessness. And as a result of a recent survey that they did, they did show a 24-percent decline in the number of people living on the streets and in shelters, which is a good thing. But I am particularly concerned, as they are, with homeless veterans who may be out there, who have the ability and certainly the right to access benefits, but may not be aware of it.

It seems to me having Census workers out finding people who are living on the street—and you have the staffing to do that—presents an opportunity, first, to identify those individuals, but also, two, present them with information that may be helpful to get them to a place where they can get the services that they have earned and they deserve.

Could you talk a little bit about how you reach out to folks who are homeless living on the streets and if you would be in a position to help in our efforts to bring these folks out of the shadows and into the help that they deserve and need?

Mr. THOMPSON. Senator, getting an accurate count of all Americans is our primary goal for 2020. We are right now at this point in the process of starting to look at how we will blend in operations on top of our automation and reengineering to count these populations. So, for example,

I have a National Advisory Committee on Racial, Ethnic, and Other Populations, and we are starting a working group on that committee right now to start addressing these issues.

We want to address these issues over the years ahead, but right now I do not have a proposal for how we are going to count the homeless and the veterans in 2020. But we do intend to have a plan for that, and we will share it widely.

Senator PETERS. When do you expect to have that plan?

Mr. THOMPSON. I would have to get back to you. I would say by the end of next year we should have some significant progress on that.

Senator PETERS. Well, I would appreciate that, and if you could inform our office about that, I would appreciate that. And then the second step is that when we identify these individuals, it also is an opportunity to make sure that these individuals, particularly homeless veterans, that there are benefits that are available to them and places of refuge for them to go. Although it is a different mission than you have for your Census workers now because of certainly the concern about those who have served our country who may be homeless, this may be an opportunity for us to kind of take a whole-government approach to helping those individuals. I would hope you would be open to that as well.

Mr. THOMPSON. Of course.

Senator PETERS. Thank you.

Senator LANKFORD. Mr. Thompson, before I recognize Senator Carper, can I get a clarification? By the end of 2015 or by the end of 2016 you will have the plan for the homeless?

Mr. THOMPSON. I was referring to the end of 2016.

Senator LANKFORD. OK. So by the end of 2016, you will be able to have articulated a plan for that, for identifying the homeless and then doing a count there?

Mr. THOMPSON. Yes.

Senator LANKFORD. Great. Thank you. Senator Carper.

Senator CARPER. Thank you, Mr. Chairman.

Mr. Thompson, it is very nice to see you, and Mr. Goldenkoff, Ms. Cha. I love saying your name.

This is not your first opportunity to be involved at a senior level for the Census. Is that correct, Mr. Thompson?

Mr. THOMPSON. That is correct, Senator. I was the career person in charge of the 2000 Census.

Senator CARPER. OK. Just thinking back on your tenure with the Census Bureau, share with us some of the insights or things you have learned in this tour as our Director that are new and that you did not know before and how might they direct us as we try to get a better result for less money?

Mr. THOMPSON. Well, Senator, you are hitting on the reason that I came back into public service. When I left the government in 2002 and went to the private sector, I had no intention of coming back into government. But I could not foresee just the way that technology had developed and offered a lot of opportunities to do the Census fundamentally differently than we had done it before. And that got me excited to come back into government and help the Census Bureau move forward.

Senator CARPER. When you watched back in 2010, or actually the run-up to 2010, when they were trying to develop the handheld, and rather than get something off the shelf, actually develop and build and invent it, as you said, invent it ourselves, what did you think as you watched that unfold?

Mr. THOMPSON. I was very disappointed that that happened, that that event happened. I was fairly close to it. I was on a panel that Secretary Carlos Gutierrez called together to give him a recommendation on how to proceed in the aftermath of the handheld contract issues. I was just disappointed and sorry for the Census Bureau. I wish I could have been there, but I was not.

Senator CARPER. My recollection was this is when Dr. Coburn and I were taking turns leading the Subcommittee on Federal Financial Management that had jurisdiction over the Census. And it seems to me we went through a period of time where we had a fair amount of churning in terms of leadership at the Census. Is that correct? I think we had someone who was Acting Director, and then within the span of a couple years, we had maybe a couple of other people who were Acting Directors. We do not have that challenge anymore, do we?

Mr. THOMPSON. Not right now.

Senator CARPER. That is right.

Mr. THOMPSON. I am delighted to be the Director.

Senator CARPER. Because we have a law that actually says that the folks who are appointed in the job serve for 5 years, and the idea is that hopefully we will end up in a situation where we are not going to be in the throes or we are in the face of the Census and all of a sudden have turnover in leadership. My hope is that is going to serve us well.

I am a guy who likes to think about incentives, how do we incentivize behavior to get better results, and I am real interested in root causes. We have a lot of people that are not interested in cooperating and being counted and providing information to the Census because of their right to privacy or they do not see any value for taking the time to either respond online or in person if somebody knocks on their door. They do not have an appreciation for the value of the information that we gain from the Census. They do not care how their Congressional districts are apportioned and all that.

How do we incentivize people to be better citizens in this process? What are we doing, we collectively, to incentivize people to be better citizens in this regard? It is all great that we have the technology, we provide the money, the oversight, the funding. But how do we incentivize people? Collectively, how do we do that?

Mr. THOMPSON. That is a very good question, Senator. We have started research on that issue already for the 2020 Census. We

have a test in the Savannah, Georgia, area, the Savannah, Georgia, media market, and we have already started to test different ways to reach out to the American public to encourage them to respond. And this is just the first in a series of tests, but we are starting this process much earlier than we did in the 2010 Census process.

Senator CARPER. OK.

Mr. THOMPSON. But it is something that we have to conduct some research on because the population has changed. It is not the same population that we had in 2010.

Senator CARPER. All right. I agree with you. I thought that was a pretty good question, and I am going to ask you to think about your answer and respond to me on the record, because I think this is a big issue, and most people have not a clue of the value to our country, to their communities, of a Census done well.

Let me also ask, one of my many favorite sayings is, "Pay me now or pay me later." And I think that also applies with the President's budget request for 2016, and he is asking in his budget for the Census a bump-up in funding. Explain to us why that relates to pay me now or pay me later.

Mr. THOMPSON. Certainly. So the biggest part of the bump-up is to start developing the systems and processes that we will use to take this reengineered Census, and it is a challenge because we have never done a Census this way before. We have never used handheld devices. We have never used the Internet as a self-response option for the Census. We have never used optimized routing. So there are a lot of gains through that. But we really have to do the work in 2016 and 2017 to have in place the system so that we can run a complete end-to-end test in 2018, and that would give us the assurance that we could avoid a bad situation, similar to what happened before.

Senator CARPER. OK. I have some more questions, and I will look forward to another round. It will give me a chance to pick on our other two witnesses. Do not go away.

Senator LANKFORD. Thank you. We will open it up for questions here, and we will get a chance to go through as much as we can.

Mr. Thompson, you had made a comment about identifiers and the Internet, as far as being able to follow-up. Can you complete that thought as well? If individuals go on to the Internet and they actually do their information, will they have an identifier there that is consistent so we will know who that was and have the consistency of that, as we would with a paper form?

Mr. THOMPSON. Thank you, Senator. So let me be clear. What we are testing is in every Census to date, most of the enumeration required that an individual have either a Census questionnaire or an ID number that linked them to an address. What we are testing now is letting people respond with their address alone, and that has two issues that we have to feel comfortable with before we do it. One issue is we have to be able to validate their response as accurate. And the other issue is we know that in the past even we have had more than one response for the same address. And so we are going to have to be able to unduplicate the responses that we get. These are some challenging problems. We are working with experts in the field, including the National Institute of Standards and Technology, the MITRE Corporation, and some others.

So we are taking this very seriously, and we need to be convinced that it will work. But if we can make it work, it does give us the opportunity to allow people to be counted when we reach them with a message if they do not have their questionnaire. So we think that the opportunity there is worth trying to do that. But as I said, we are testing it. We are going to have the results of our testing, and we are only going to implement it if we feel comfortable.

Senator LANKFORD. So the assumption is that we would have a master list of every address in the United States, and if they pull up that particular address, they could fill out the information for that address, not that they are creating an address in the system. So there is some sort of verification even at the beginning if they are typing in an identifying address that we do not recognize as a real address.

Mr. THOMPSON. Yes.

Senator LANKFORD. OK. Ms. Cha, questions and thoughts about that? What are the risks involved?

Ms. CHA. Well, in addition to the address verification, there is also the identity verification as well. So I just wanted to kind of round out that piece, these two key elements.

On the former, it seems to be much more simple from a technology perspective to match the address that a respondent enters into the form and match that against the Master Address File (MAF). However, the concern that we have here is that it is unclear as to whether the Bureau knows exactly what it needs to know in time for its September 2015 decision. Again, that milestone decision is going to—it is intended to deliver the complete set of business requirements for the systems development piece.

So if there is information regarding non-ID processing that is not contained in that decision, then ultimately it could lead to system rework downstream. So that is the primary concern that we have with regard to non-ID processing, just that the Bureau is—we are in year 5 at this time, and if continued testing in this area proceeds beyond September 2015, it will impact the systems that they are expecting to deliver and to deploy.

Senator LANKFORD. Right. And you made extensive comments about cybersecurity issues and vulnerabilities. Your statement, if I remember correctly, access controls, you have 115 recommendations of which 19 have actually been responded to at this point.

Ms. CHA. That is correct.

Senator LANKFORD. So what does that mean as far as your perception? At this point you would expect 115, 19 have been responded to. When would you anticipate the other 90-some-odd are going to be responded to?

Ms. CHA. Well, we would like to see this be one of the top priorities for the Census Bureau. My understanding from my team is that the Bureau provided additional evidence late Friday afternoon, so my team will be looking at the progress that they have made in the remaining recommendations. And we are committed to working with the Bureau to ensure that they effectively close those out, because ensuring that the information that they are collecting is secured is of vital importance.

Senator LANKFORD. Sure. Mr. Thompson, do you want to comment on any of that at this point?

Mr. THOMPSON. Yes, Senator. My team is of the perspective that we have responded to all of the concerns. However, we have obviously not communicated that to our colleagues at the GAO, and I certainly intend to make sure we communicate that and we reach agreement as to which ones have been responded to, which ones have not, and what we have to do. And then I would be pleased to send a report back to you.

Senator LANKFORD. Good. There has been great conversation in the last several years about the questions that are included or not included. There was a little bit of conversation in 2010 over the issue of citizenship, as I am sure you will remember distinctly. Where do we stand on that conversation for 2020 as far as whether citizenship will be asked or are we going to get every single house, and then other questions that may change or that are being currently considered and when that list will get to us and we are evaluating these questions to be different than the previous 10 that were there, and when will we get a chance to take a look at those as well?

Mr. THOMPSON. Senator, right now the citizenship question is on the American Community Survey. We have not received a request, because that is what determines the content of the Census, from those entities that have asked us to put that on there. So we have not received a request to put citizenship on the Census itself.

Let me be clear about a couple things. In 2017, we will be submitting the topics that we plan to ask on both the Census and the American Community Survey to the Congress, and in 2018, we will be submitting the actual questions.

Senator LANKFORD. OK. And let me ask about the American Community Survey. There has been a lot of consternation in Oklahoma, and I would assume in other States as well, about the nature of how it is collected if you do not respond to it. My office consistently gets calls from individuals saying someone is at their door, someone is parked outside. We have a single mom that is very uncomfortable that there is some guy outside in a car; they are knocking on the door consistently. All of those things to get the American Community Survey. How are we going to put this into a process that they understand this is a Federal Government that is working for them rather than a Federal Government that is stalking them? If they do not want to complete this, shifting that to a voluntary status, and so we can have some way that they do not feel like it is oppressive coming after them to be able to fill out the American Community Survey?

Mr. THOMPSON. Thank you, Senator. I have heard the concerns about the American Community Survey. While it provides a wealth of very important information that is used by the Federal Government to allocate funds by State and local governments and by businesses to create jobs, we understand that there are concerns with the length of the American Community Survey and with the perception that the language on the envelope which says your response is required by law is offsetting. So we have embarked on a program to look at how we can address these concerns, and we are doing a number of things. We are looking to see if we can make the questionnaire shorter by asking some questions every other year if the data is not needed on an annual basis.

Senator LANKFORD. There is some publicly available data as well that we seem to replicate.

Mr. THOMPSON. Right. And we are also looking to see if we can use administrative data records to answer some of the questions on the form. We are looking at how we can increase our messaging, change our messaging to be more of a communicator, why it is so important that you fill it out, what it means to your community. And we are also beginning a program to test the language that we put on the envelope. So this May, we are running the test. That is next month. We are doing a test to measure the effect of not putting that language on the envelope so we can see what the effect is. So we are taking these concerns very seriously. The Secretary of Commerce is very attuned to this. I am providing a report to her at the end of this fiscal year, and she expects to see some significant progress in this area.

Senator LANKFORD. Well, surely you can understand someone that shows up on your doorstep repetitively with a badge saying, "I would like to ask you: What time do you leave for work? How many people are in your house? How many toilets do you have in your house?" those questions immediately raise red flags for a lot of Americans. They do not want to answer it. But they also cannot make this person go away, which is why our office gets calls to say, "Why is this person here? Why won't they go away? I have told them no, but yet they just keep coming at me."

So it is not just the nature of the questions, the length of the questions, the type of questions. It is the treatment of the individual that is at their door and the repetitive push for them. So there is a whole series of issues there. I understand the information is valuable, but there are a lot of issues that are still there in the American Community Survey that we have to resolve, and I am glad to hear that—you said this testing is in May. When will we get results from this?

Mr. THOMPSON. I do not know exactly, but we do not intend to take that long to get it out.

Senator LANKFORD. OK. So give me an example: By December?

Mr. THOMPSON. Oh, definitely by December.

Senator LANKFORD. OK. So this year, this summer? Into the summer?

Mr. THOMPSON. I would hope so. But I do not want to commit to it, but we will definitely have it by December, probably much sooner than that.

Senator LANKFORD. OK. Thank you. Senator Carper.

Senator CARPER. Before I move away from the American Community Survey, let us say if my household were one of those chosen in Delaware for the completion of the survey, is the first notification that we have been selected somebody knocking on my door? What would precede that?

Mr. THOMPSON. The first thing you would see would be a post-card notifying you that you have been selected for the survey in the mail.

Senator CARPER. And then what?

Mr. THOMPSON. And then you would get a letter asking you to respond by the Internet, and then you would get a questionnaire asking you to fill out the questionnaire and mail it back.

At that point the next step would be if we had a telephone number for you, we would call the telephone number. The next step would be then we would send a person to visit you in person.

Senator CARPER. OK. Is there any time during that process we somehow convey to people why this is important for them to do it, to respond?

Mr. THOMPSON. Senator, we do do that, but I think that there is room for us to improve on that. For example, we have already had one training of our entire field staff on how to approach households, and we are going to be doing additional trainings in this area. We need to do a better job of communicating to the American public why this survey is so valuable to them and why—

Senator CARPER. Just to keep in mind maybe what I hope we already do this, but whether it is in the postcard or whether it is in something that folks get over the Internet or something that people get in writing saying, “You are going to get a survey,” just to be able to say in a very short few words why this is important, without a whole lot of verbiage.

I want to sort of refocus for a little bit, if we could, and talk about cybersecurity. Ms. Cha, we are going to get you in the act here. Let me just ask, what do you believe needs to be done with respect to cybersecurity, on the cybersecurity front, as we prepare for the 2020 Census?

Ms. CHA. First and foremost, it has to be addressing the 115 recommendations that we have made relative to those control deficiencies. Again, as I mentioned to Senator Lankford, access controls in particular are of vital importance in strengthening, because those regulate who and what is accessing the Bureau’s systems. And so, as the Bureau is exploring these methods to collect data out in the field, including, using personally owned devices or government-issued devices, it is going to be critical for the Bureau to secure those back-end systems to make sure that the information is properly secure.

In addition, if they are expanding the use of administrative records, they are also going to have to shore up the controls there to ensure that that information is adequately protected.

So addressing our 115 recommendations made is the top priority.

Senator CARPER. 115? That sounds like a lot.

Ms. CHA. Well, actually, it is a little lower since the Bureau at this time has addressed 19 of them, so roughly 20 percent.

Senator CARPER. OK. You have already talked a little bit about this today, I think, Mr. Thompson. Would you just kind of think out loud again for us on the cyber front? As we sit here, folks from all over the world are hacking into government systems trying to steal our intellectual property, identifiable information, and it is a huge challenge for us. What can you tell us that would make us think that we are up to this challenge?

Mr. THOMPSON. Yes. So we have a multi-layered system to protect information. We limit the access to our systems. Within our program we have ways to control who can access the data. We encrypt all of our individual data when it is at rest, so, for example, our philosophy is that if we have data on a machine, we assume the machine can be compromised and, therefore, we have to protect and encrypt the data.

We have some very sophisticated ways that we look at the Internet traffic that moves in and out of the Census Bureau. We work with the Department of Homeland Security on that detection. We also scan all of our outgoing traffic to make sure there is no personal information in it.

But having said that, and we do want to get straight with the GAO on the 119 recommendations because we take that very seriously, and we want to be in compliance with those because that is the kind of practices that we need, and we will get to the bottom of that.

Senator CARPER. Let me just ask a question. Of the 115 minus 19—what is that, 96—outstanding, are some more important than others? I presume they are.

Ms. CHA. Yes, and the access controls-related recommendations are of the utmost priority.

Senator CARPER. What Ms. Cha just said, is that something that rings a bell, access controls?

Mr. THOMPSON. I believe we have addressed that. But, again, I need to get with our people and her people and make sure that what we think is addressed is what the GAO thinks is addressed, because I would rely on them and their final say on that.

Senator CARPER. OK. Let me ask you about hard-to-count populations. We talked about this already, but it is certainly one of the most challenging jobs in the Census and also one of the most expensive, a real cost driver. Maybe what we learned from the last couple of times out, 2000, 2010, about counting hard-to-count populations, one of the ideas I floated, I guess in the run-up to 2010, was maybe we could have—in terms of incentivizing people, to find ways to really say, “I would love to”—“I cannot wait to respond to the Census because this is what I will get out of it.” We threw out ideas for lotteries where people could have their name—if they were early responders, they could be in a lottery, just all kinds of ideas. But hard-to-count populations, people who do not want to be counted, people who do not want you to know they are there, folks who maybe because they are undocumented, or maybe because they are parole violators, how do we get some of those people to come out of the shadows?

Mr. THOMPSON. So one of the most important ways that we have found to help count those populations is through a program that we call “local partnership,” and that is where during the decennial census we have a number of individuals that we identified that have local ties to communities, they are trusted voices in the community, and by working with these people, giving them materials about why the Census is important to their community in particular, not just in general but to particular communities, we have seen gains in the 2000 Census and the 2010 Census in reducing the differential undercount between minority and non-minority populations. So we are seeing those gains. It is not perfect, but it does show that the more we can reach out on the local level with trusted voices to convince people to be counted, that works and pays big dividends. And that is something else we are starting to work on at this point in the decade.

Senator CARPER. Good. All right. Thanks. Thanks so much.

Mr. Chairman, if we have another round, I have a few more questions.

Senator LANKFORD. Go ahead.

[Pause.]

Senator CARPER. Mr. Goldenkoff and Ms. Cha, what is next for GAO's oversight for the 2020 Census? Give us a look ahead.

Mr. GOLDENKOFF. Our focus is on the operational aspects and the cost-savings estimates, so we are going to be looking at these other four cost-savings initiatives that Director Thompson mentioned. We have ongoing work that is looking at the Census Bureau's use of administrative records. That report will be out in a couple of months. After that, we will be looking at the Census Bureau's use of targeted address canvassing, and we also expect to look at the Census Bureau's cost estimates, and we will try and validate them. Right now they are estimates, but we do not know what is behind them.

Senator CARPER. Ms. Cha.

Ms. CHA. In addition to that, Senator Carper, we will be starting a review for this Committee with regards to the CEDCaP initiative, and we will be starting that later this year, roughly in the October timeframe. So that is going to be very critical because we will know early on whether or not the quality of the September 2015 decision is good or not in terms of the completeness of the business requirements, again, because having a full, comprehensive set of business requirements is critical to informing the system development work downstream.

Senator CARPER. Why don't each of you give us—we have already heard you in response to other questions talk a little bit about this. But if you were sitting up here with us and you wanted to make darn sure that we got a good Census at a reasonable price, what are the one or two things that you would do if you were in our shoes to make sure that that happened so that it would not be on us and we would have better met our responsibilities? Ms. Cha, why don't you go first? You look like a potential Senator.

Ms. CHA. Well, I think going back to my response to Senator Ayotte, with regards to the complexity of the CEDCaP initiative itself, I think based on the risk that the Bureau currently has relative to IT acquisition, it would behoove them to look at whether there are simpler ways to go about acquiring the CEDCaP initiative. It is quite ambitious, and, again—

Senator CARPER. There are people who might be watching this on television or listening, and they would say, "What is CEDCaP?" Could you just explain it in terms that people might understand?

Ms. CHA. Yes. It is the enterprise-wide IT initiative that will deliver the systems and the infrastructure to support the 2020 Census. So it is a collection of roughly 14 projects and multiple systems beneath those projects. So it is a large and complex IT modernization program, and it is critical that the risks that we have identified with regards to the time constraints as well as their IT posture in general, that those risks inform the decisions about IT that they will be making in September in terms of what is actually realistic and viable for 2020.

Senator CARPER. All right. Same question. Mr. Goldenkoff, please.

Mr. GOLDENKOFF. I would hold the Bureau accountable for meeting costs and scheduled milestones. If you look at where the 2000 Census went off the track and the 2010 Census went off the track, past experience has shown that the Census Bureau either runs out of time or runs out of money. So the best way to make sure that the Census Bureau is on track is regularly checking in with them and monitoring whether they are meeting their cost milestones and their schedule milestones. And that is the early indication that things are going off the rails.

Senator CARPER. All right. Director Thompson, if you were Senator Thompson and this was Director Lankford, what would you make sure we get done?

Mr. THOMPSON. I would rather comment in a different way.

Senator CARPER. OK.

Mr. THOMPSON. We are putting some things in place to try to minimize the risk, because you can never be sure. So, for example, the document we are producing this fall, the 2020 Census Operational Plan, and it will be 3 years earlier than we issued an operational plan for the 2010 Census. So we are getting an early start on it.

We have in place an active risk management framework (RMF) and risk management process where we constantly identify major risks, and we constantly look at how we can find contingencies for those risks. We would be happy to share that with the Committee so you can feel comfortable that we are looking at the right risks.

In terms of the enterprise IT systems, we do not argue with the GAO that it is a high-risk system because we are developing new processes. But I can assure you that this is getting full attention from the Department of Commerce. The Department of Commerce CIO is fully engaged with this program and with our CIO on the program. In fact, he is running an independent verification and validation (IV&V) process on the program. So he is taking it very seriously, too. The whole Department of Commerce has this as one of their priorities, and success is one of the priorities of the Department of Commerce.

Senator CARPER. Good. Mr. Chairman, I have one more. Do we have—

Senator LANKFORD. Sure.

Senator CARPER. In my old job as Governor, when we were wrestling with a problem in Delaware, trying to figure out how to deal with a challenge, sometimes in a Cabinet meeting I would say to my Cabinet, "Some other Governor in some other State has dealt with this issue. They figured out how to deal with it in an appropriate way successfully. What we have to do is find that State, that Governor, whoever worked on this issue in another State, and find out: Did it really work? Is their solution transferable to us in Delaware?"

We are not the only nation grappling with doing a Census, and we are not the only nation grappling with doing it in a more cost-effective way. Who are some other countries that we are learning from? What are we learning from them?

Mr. THOMPSON. We regularly work with other countries like the United Kingdom, Canada, Australia, and share our progress; we

share our problems. We have an ongoing dialogue about what works, what does not work.

So, for example, Canada has been using the Internet as a response option before we have, so we have been working with the Statistics Canada people to understand what they have learned that is both good and not good in terms of how to implement an Internet self-response option. But we do have active discussions going on with our fellow countries.

Senator CARPER. Could you give us just maybe one example, a clear, easy-to-understand example of something that we have learned in this back-and-forth with other nations, maybe the ones you mentioned, maybe others, say this is what we learned from Canada, this is what we learned from Britain that we are going to be doing differently this cycle?

Mr. THOMPSON. Well, I think there were two things with Canada. One thing was that the Internet can be a very successful way to get responses in on a very timely basis, and Canada has had great success in using the Internet as a primary response option.

The other thing we have learned from Canada is that if you are not cautious about how you word the equivalent of the American Community Survey and the messaging on that, you can lose a lot of data quality. At the last minute Canada had to make their survey voluntary in 2011, and they did not have much time to work on it, and they lost a lot of data quality and were not able to publish a lot of the data from their equivalent to the American Community Survey. So those are two examples of some things that we have learned.

Senator CARPER. Good. Thanks.

Thanks, Mr. Chairman.

Senator LANKFORD. One other thing I would just ask you to submit for the record is the controls and how you are going to handle staff for 2020, background checks, citizenship status, and such for actual Census takers and Census staff, so when that is settled and resolved. Do you have a good idea of when you are going to set those parameters?

Mr. THOMPSON. Right now, our intention is to use similar processes in terms of fingerprinting and validation as we did before. However, there is still an active class action suit on that issue, and so we are awaiting the outcome of that, and I do not have an estimate of when that suit may be resolved.

Senator LANKFORD. OK. So the assumption is to use basically the same standards as the last time, pending this class action suit.

Mr. THOMPSON. Yes.

Senator LANKFORD. OK. Then we will follow-up from there.

Going back to the American Community Survey again, is there anything on the American Community Survey that is not publicly available from other places or from other survey teams? I understand our every-10-year Census, that one is constitutionally mandated. The American Community Survey is not. And so what I am looking for are some of the efficiencies that are there of cost. What data can we buy at less expensive—you are saying if it is \$97 a person for a main Census but you think it is more for the American Community Survey, is there a company we can buy this same information from for \$50 apiece and save us half the money? That

is what I want to try to figure out and to see do we need to gather this data this way from Census, or is there a more efficient way to do that? And I would be interested to know if GAO has examined that in the past.

So, Mr. Thompson, if you want to just be able to address just some of the other resources that are out there that are publicly available that may already be there. I am sure you are talking about that with your questions, and then other places and efficiencies.

Mr. THOMPSON. So, Senator, we are looking right now as we speak at what resources are available to supplement or remove some of the questions on the American Community Survey and getting them from other places. I must say, though, having run a business myself, my efforts in running the business were, trying to keep the business in business and to grow the business. And so I was not motivated to form a comprehensive data series for the entire United States. I was looking at where my data was most important to my business.

Senator LANKFORD. Right.

Mr. THOMPSON. And so that is why it would be very difficult to get from the business community a comprehensive data set for all parts of the United States.

That being said, we are certainly looking to use existing information in lieu of asking people that information.

Senator LANKFORD. Right. So my question is: There are businesses that do this kind of investigation all the time, this kind of research. You are right, they are not trying to comprehensively touch on every single area, but if we are able to say to them, "We want to buy your data. It has to include this," they already have half the data, they could gather the other half and probably half the cost for us as well. I am trying to figure out how do we get below \$100 apiece to be able to ask a set of questions when everyone who does surveys—and maybe I am missing it, but I do not know of another survey that costs as much as that one does to be able to do it. I understand the unique parameters that we have with every household, every street. That is different. It is like U.S. Mail has a different set of cost parameters than FedEx does because it is every house, every day, every street. I get that. But I am trying to find are there other ways. Has GAO examined something like that in the past?

Mr. GOLDENKOFF. Not a very detailed analysis. We have not gone question by question. What we have looked at is the availability of some of the data in other Federal surveys and other Federal data, and it really varies. In some cases there really is no substitute for the ACS data because it really gets data down to a very low level of geography, and sometimes that is needed for some of the requirements. Some of it goes back to statute. Some statutes require that the data come from the Census. In other cases, it is just the best data available for that need, and so it is more for administrative purposes.

So this is something that the Census Bureau has to look at, go item by item and see what are the alternatives and what is the cost-benefit, again, balancing that cost-accuracy tradeoff.

Senator LANKFORD. Right. But has GAO taken a look before about private entities doing this if we paid them—again, if we are at \$100 a survey, are there entities that would gather the same amount of data—

Mr. GOLDENKOFF. No, we have not—

Senator LANKFORD [continuing]. For less cost? Again, we have a difference between the American Community Survey, the Census between the Census, and the actual Census. We have a constitutional mandate for the actual Census every 10 years. This one is supplementary data that helps us, but it is not the same constitutional mandate, does not have to be done by a government entity, but is useful to us.

Mr. GOLDENKOFF. We have not looked into that, no.

Senator LANKFORD. OK. Well, that may be one that we try to follow-up on in the days ahead and try to find the most efficient way to be able to gather this so that we have good data and information, but we do not lose in cost.

Senator Carper, any additional questions?

Senator CARPER. Just one. I do not recall whether you are married or not, Director Thompson, but every now and then our spouses have a way of saying to us, “Well, whatever plans we had for the rest of our career, you can forget about that.” Every now and then, my wife—I do not know if it is tongue in cheek or not, but she will say, “Somewhere down the line here, why don’t we just put everything we have in storage and just go and travel around the world.” And I say, “OK. When do we have to do that?” And so far she keeps letting me off the hook.

But let us say you were married—maybe you are—and you get into 2016 and your spouse says, “Everything we have, let us just put everything in storage and let us spend the next several years just traveling around the world.” And, you are serving this 5-year term. We are grateful that you are doing it. But in order to maintain peace in the valley with your spouse, you declined the President’s offer for another 5-year term. And so then we have to figure out how do we get a smooth handoff, how do we get a smooth handoff carrying up to the next Census.

One of the reasons we have this 5-year term in law is to try to ensure we have a better transition. But there is nothing to ensure that you will want to stay beyond this at this time. Hopefully you will. But what else are we doing to ensure a smooth handoff of the Census? I think this is premature, but what else are we doing and should we be doing to make sure that, whether you stay or do not, we have that smooth handoff?

Mr. THOMPSON. Well, thank you, Senator. So there are some things that are certain, and one is that my term ends December 31, 2016, the term I am currently in. Then there will be another term, which I could be reappointed for or not. But there are a lot of things that are going to happen between now and then, including a Presidential election, that I have no control over.

So what I am focusing on is putting in place the best plan for implementing the 2020 Census that I can by the end of my term so that the Census Bureau has good guidance. That is something I can control.

I also need to say that the Department of Commerce is being very supportive of me in that effort. So that is what I am doing.

Senator CARPER. During an earlier administration, I felt we were at a point where we were really struggling with the Census. We reached a point where I felt that there was the kind of engagement from the Secretary of Commerce that we needed. And you mentioned a couple of times the involvement of the Secretary and the Secretary's senior staff. Would you just characterize that again? Because I think it is really important.

Mr. THOMPSON. Thank you. The Census Bureau has had tremendous support from the Office of the Under Secretary for Economic Affairs, they oversee the Census Bureau and the Bureau of Economic Analysis. We have had tremendous support from the Office of the Secretary and from the Secretary herself. I met with the Secretary periodically, and she wants to make sure that we are on track to do a good Census and how she can help me.

And we have had tremendous support from the Office of Management and Budget, which has understood our needs and has been very helpful in defining those.

So the Administration is behind conducting an accurate Census for 2020 and supporting the Bureau in moving forward.

Senator CARPER. Good.

Mr. Chairman, it has been an encouraging hearing and an important one, and I am sorry all of our colleagues could not be here. On the question of the budget issue that we have raised and talked a little bit about for 2016, our Chairman is on the Budget Committee, and he has been out there participating, as you probably know, in a conference on the budget. So he is probably in there wrestling and trying to make sure we get this bump-up so that we will get a good Census in 2020.

Senator LANKFORD. While we are in here trying to make sure that we are protected from a \$3 billion error.

Senator CARPER. There you go.

Senator LANKFORD. Back and forth again. So thank you all for being here and what you bring to this. There is a tremendous gain for the entire Nation. It is a constitutionally mandated operation, and we are grateful for the service, and hopefully we can continue to work on efficiencies and bring down the cost per person and try to examine some efficiencies out of the box in the days ahead. So thanks. Good hunting on a lot of the testing and evaluation and things that are happening to us in the days ahead.

The hearing record will remain open for 15 days until May the 5 at 5 p.m. for the submission of statements and questions for the record. Thank you all for being here.

Senator CARPER. Mr. Chairman.

Senator LANKFORD. Yes, sir.

Senator CARPER. I want to again mention the name of Lawrence Buckner who was killed in the line of duty, I think about 11 days ago.

Senator LANKFORD. Right.

Senator CARPER. I know his name was mentioned earlier.

Senator LANKFORD. Yes, in the opening.

Senator CARPER. You and others extended your condolences to his family, but sometimes we talk about nameless, faceless bureau-

crats in the Federal Government, and these are people, a lot of them, who work hard, work long hours, in some cases at great risk to themselves, and we remember him and thank him and other of his colleagues who do this dangerous work. Thank you.

Senator LANKFORD. Entirely appropriate. Thank you again for the way you are taking care of them and their families.

Thank you. This hearing is adjourned.

[Whereupon, at 4:33 p.m., the Committee was adjourned.]

A P P E N D I X

Opening Statement of Chairman Ron Johnson

“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”

Monday, April 20, 2015

As prepared for delivery:

I would first like to express my condolences to the family and loved ones of Lawrence Buckner. Mr. Buckner was killed in the line of duty on April 9, 2015 at the federal facility where the Census Bureau is headquartered. It's a tragedy that Mr. Buckner lost his life from such a callous act of violence while he was protecting federal employees at their place of work.

Today's hearing is a chance to examine the Bureau's work towards the 2020 Census. We are at the halfway point in planning for our nation's headcount, and it is important that the Census Bureau is adequately prepared.

Unfortunately, the cost of the 2010 Census looms over the Bureau's work for 2020. The 2010 Census was the most expensive in our nation's history, with a price tag of approximately \$13 billion. And \$3 billion of the cost of the 2010 Census stemmed from developing an IT project, then abandoning it, and then reverting to an alternative.

If the 2020 Census were to continue the historical trend of increasing costs for each decennial survey, it will cost taxpayers nearly \$25 billion. It cost about \$97 per-household unit to conduct the 2010 Census, and the Bureau is aiming to maintain this per-household unit cost.

The Bureau has also identified areas where it can achieve costs savings of up to \$5 billion by modernizing the design structure of the 2020 Census. However, these efforts to modernize carry greater risks, which can lead to greater costs. Therefore, it is important that the Bureau identifies and mitigates these risks as soon as possible rather than kick the can down the road, hoping that everything runs smoothly come Census Day 2020.

The Bureau is undertaking several information technology initiatives in preparation for the 2020 Census. The 2020 Census will be the first with a heavy focus on Internet response. More field operations will be automated and streamlined in order to need less boots on the ground. The Bureau is also developing an information technology system—the Census Enterprise Collection and Processing initiative - which will be the backbone supporting these initiatives.

This modernization for the 2020 Census is the kind of challenge that many would shy away from, so I thank the Bureau and its Director, Mr. John Thompson, for facing this challenge head-on. I also want to thank the Government Accountability Office, from which we have two witnesses today, for their hard work to help inform both the Bureau and Congress about these initiatives for a cost-effective and innovative 2020 Census.

Thank you to the witnesses for speaking with us today, and I look forward to your testimony.

Statement of Ranking Member Thomas R. Carper

*"2020 Census: Challenges Facing the Bureau
for a Modern, Cost-Effective Survey"*

April 20, 2015

As prepared for delivery:

Before we begin, I would like to take a moment and honor Lawrence Buckner, who lost his life while ensuring the safety and security of his fellow Americans at the U.S. Census Bureau in Suitland, Maryland. Our thoughts and prayers are with all those whose lives have been impacted by this terrible incident, especially Mr. Buckner's family, and we will continue to honor Mr. Buckner for his dedication and service to his mission and our nation.

I want to thank Chairman Johnson for holding this hearing today. I also want to thank our three witnesses, U.S. Census Bureau Director John Thompson and Robert Goldenkoff and Carol Cha of the Government Accountability Office. I'm pleased you could all be here today as we take a closer look at preparations for the 2020 Census.

We all know that the Census is fundamentally important to our nation. One of the few governmental activities required by the Constitution, it determines the apportionment of seats in Congress. The information it gathers is also used at the federal, state, and local level to determine how hundreds of billions of dollars in funds are distributed. And it is used by the private sector for important business decisions. A Census that is not thorough and accurate has real implications for our political system and our economy.

When I chaired this Committee's Subcommittee on Federal Financial Management, I held hearings with Senator Tom Coburn to take a closer look at preparations for the 2010 Census. Unfortunately, that year the Census Bureau had a costly IT project that went awry, throwing the whole operation into chaos. As a result, the 2010 Census cost taxpayers \$13 billion; roughly double the cost of the previous Census.

I've spoken at previous hearings about the need for us to look in every nook and cranny in the Federal Government and ask this question: 'Is it possible to get better results for less money or better results for the same amount of money?' I believe the answer is 'yes.' And the Census Bureau is no exception.

Today we are five years out from the 2020 Census and this Committee has an oversight responsibility to make sure planning is on track for 2020. More importantly, we need to make certain that the issues that led to the failures and cost overruns we saw in 2010 have been addressed and will not reoccur. Taxpayers should not have to pick up the tab for them again.

An important part of this oversight will involve both the Bureau and GAO laying out milestones that need to be met over the next five years. We will then need to gauge progress in meeting these milestones over the course of the next several years so problems that arise can be solved early on. We in Congress also have a responsibility to make sure the Bureau has the funding it needs during this crucial period of planning and testing.

As we will hear the Bureau describe today, the strategy the Bureau has put forth for modernizing the Census should save \$5 billion. Effective use of technology will be key to driving down costs in 2020. This should be the first Census during which all households have the option to respond online. I say 'should' because if the necessary planning and testing is not done now, and the necessary cybersecurity protections are not put in place, the Census will have to rely once again on old, largely paper-based methods of collecting information. That will drive up costs and frustrate Americans who are used to communicating and conducting business online every day.

We must also strive to conduct an equitable Census, recognizing the issues that sometimes lead to undercounts of certain populations such as ethnic and racial minorities, less advantaged groups, and renters. I look forward to hearing from our witnesses today who will help us identify ways to achieve a comprehensive and cost-effective 2020 Census.

Opening Statement of Senator James Lankford
“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”
April 20, 2015

As prepared for delivery:

Good afternoon, the Committee will come to order.

I would like to welcome everyone to this afternoon’s hearing on the 2020 Census: Challenges for Facing a Modern, Cost-Effective Survey. I will begin by recognizing myself for an opening statement.

Director Thompson, on behalf of the Committee, I would like to express our condolences regarding the loss of Lawrence Buckner, who was killed in the line of duty on April 9th at the Census Bureau headquarters in Suitland, MD.

This was a senseless act of violence, and our thoughts and prayers are with his family and with those at the Bureau.

The United States Constitution mandates that an “actual enumeration shall be made within three years after the first Meeting of the Congress of the United States, and within every subsequent term of ten years.”

As 2020 decennial census approaches, I appreciate the fact that the Census Bureau is actively taking steps to prepare, since as we have seen in the past, a failure to do so can drastically increase costs for the federal government, and ultimately the taxpayers.

It is laudable that the Bureau is working toward implementation of an innovation strategy, with a goal of saving the taxpayers money.

However, as GAO has noted, although progress has been made since 2010, more work is needed to ensure that technology systems are fully operational and information remains secure and confidential.

While it is important that we have information regarding the makeup of this nation, it is also important that we safeguard the privacy of the American people. Questions asked of citizens of this nation must be cost-effective and should not be overly intrusive.

When the questions go too far, it exceeds what we should be asking as the United States government. It is invasive and fuels an environment of distrust.

It is important that we examine not just the preparation for the 2020 Census itself, but also the manner in which the Census and other surveys, like the American Community Survey are being conducted, as well as the substantive nature of the questions being asked.

I look forward to your testimony and I now recognize the Ranking Member, Senator Carper, for his opening statement.

WRITTEN STATEMENT OF
JOHN THOMPSON
DIRECTOR, U.S. CENSUS BUREAU
U.S. DEPARTMENT OF COMMERCE

ON THE
“2020 CENSUS: CHALLENGES FACING THE BUREAU FOR
A MODERN, COST-EFFECTIVE SURVEY”

BEFORE THE
SENATE COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

April 20, 2015

On behalf of the Department of Commerce and the U.S. Census Bureau, I thank Chairman Johnson and Ranking Member Carper for the opportunity to testify today regarding the preparation for the 2020 Census. I look forward to today's hearing and to our ongoing discussions as we prepare for the 2020 Census.

Looking back, as we began this decade, the Census Bureau, with the guidance of Congress, established an important goal to design and conduct the 2020 Census in a manner that costs less per housing unit than the 2010 Census and to maintain quality. The Census Bureau then set out to identify the major cost drivers and to develop innovative enumeration methods aimed at reducing these costs. With Congress' support, we focused our research and testing in these early years on major innovations oriented around technology and the strategic use of information to rein in those cost drivers. When I returned to the Census Bureau in 2013, it was because I believed the goal of an accurate, cost-effective census was possible. Today, I would like to describe our work in four key innovation areas.

We believe that investing now in these four key innovation areas can yield up to \$5 billion in savings, but I need to underscore that in order to deliver these savings, we must complete the current and future tests. The tests we conducted in 2013 and 2014, and the four tests we are conducting this year are helping us along the critical path toward the 2020 Census design decisions, which we will deliver later this year. I will discuss how these tests have informed our planning throughout the testimony, and how critical the research and testing we will be conducting in the next two years will position us for the end-to-end test in 2018. The alternative to implementing the new design is repeating the 2010 Census design in 2020, which would forfeit the potential savings of \$5 billion.

These are the four key areas of innovation and the potential savings they represent:

- ***Better Address Validation:*** by using the U.S. Postal Service and other information sources, including aerial imagery, we plan to avoid walking every street in the nation to validate and update the address list. We can potentially save approximately \$1 billion.
- ***Better Response Options:*** by making responding to the census more convenient whether through the Internet, phone, or by mail, we can potentially save approximately \$548 million.

- **Better Use of Existing Information:** by using existing government and commercial information to reduce the need to follow up with non-responding housing units, we can potentially save \$1.2 billion.
- **Better Field Operations:** by effectively using technology to manage and track cases, as well as route the census takers who will be using smartphones and tablets, rather than pencil and paper, we can potentially save \$2.3 billion.

While these innovation areas highlight potential savings, we are also mindful of the importance of quality. We believe that achieving important and meaningful cost-savings in these areas, we will be able to concentrate more effectively in reaching hard-to-reach communities and ensuring that everyone has the opportunity to participate in the 2020 Census.

The foundation of an accurate census is an accurate address frame, which includes both the address and the geospatial location of all the housing units in the United States. For the past several censuses, this has required walking every street in every community in the United States to verify the designation and location of every housing unit the year before the census. Our vision for Address Canvassing has changed, and we now see the possibility of “in-office” canvassing in addition to “in-field” canvassing. Recognizing the technological advances and the increasing availability of data over the past few years, we may no longer have to validate every address by personal visit. In-office address canvassing is now possible relying on a mix of automated and interactive techniques, and we can do this throughout the decade without having to wait for the year before the census. Moreover, even if we have to send people out to the field, we may only need them to validate part of a census block, rather than walking every street to verify every address within the block. Now, we have to determine the best way to detect change and effectively manage those changes within the Master Address File (MAF). We are considering not only how to refine our old procedures, but also how we can integrate data and services from the private sector, and have recently issued a Request for Proposals (RFP) related to updating our geospatial assets. Specifically, we want to purchase address, road, and satellite or aerial imagery data, as well as potentially collect new data for new areas, and we looking to the private sector to help identify areas where change is occurring.

This year’s Address Validation Test encompasses two components that will also bring insights into this innovation strategy. The purpose of the MAF Validation Test component is to assess the ability of statistical models to predict change, whether that is new roads, new housing units, or other changes, as well as to validate the quality of the MAF. This is a nationwide test of more than 10,000 blocks. The Partial Block Canvassing Test component focuses on the use of in-office methodologies such as imagery to detect change and update our records, as well as our ability to implement an in-field canvassing of partial census blocks. We expect to have data from both of these components by the end of May.

After better address validation, the next area of innovation focus is developing better response options. We are moving away from the traditional method of relying solely on the mailout questionnaire and the enumerator to count every household. We are expanding options for people to self-respond by Internet, either at home or on a mobile device, and by phone. Those individuals and households without access to or the desire to use the Internet could still respond by paper.

Our test in Savannah, Georgia, which began earlier this year, allows us to conduct early research on the use of advertising and partnerships to engage and motivate respondents and to validate Internet responses in a way to organize our field workload and ensure accuracy. So far, we are seeing a self-response rate of about 35% for the Maricopa site, and about 31% for the Savannah site. At this same point in time during the 2010 Census (17 days into the self-response phase), the Maricopa site had a self-response rate of about 47%, and the Savannah site had a self-response rate of about 41%. We expect to see lower response rates in tests compared to the actual decennial census, but we are encouraged to see a differential between the two sites that is less than what it was in 2010. I think that is almost certainly due to the effect of the more extensive advertising, social media, and partnership efforts in the Savannah site.

We want to make the census as mobile as possible, and this means allowing respondents to answer the census without entering a “census-ID,” which is a unique number used to identify each housing unit on our Master Address File. In fact, we anticipate that by promoting the Internet option there will be an increased number of these responses in 2020. In the past, we allowed a very limited number of non-ID responses, and therefore the process of validating, or “non-ID” processing, was limited, and meant having to verify the response at the back-end. For 2020, we need to be able to “validate” these responses quickly, in real-time. This will permit us to remove the housing unit from the workload and not send an enumerator to the door, which is also a cost-savings. We also need to be able to validate the response to ensure that it is accurate, and not a duplicate or fraudulent. We are researching and testing ways to compare responses to data we have in-house, whether from other government agencies or commercial sources, as well as the potential of having a third party perform the validation.

The use of these types of data highlights the third area of innovation: better use of existing information. The use of administrative records from other federal and state government agencies and the use of third-party commercial data has tremendous potential to reduce costs. The use of administrative records is not entirely new to the decennial census. We have used records in certain types of enumeration situations, such as prisons, colleges, and nursing homes. We have relied on the records from the Departments of Defense and State, as well as other agencies, to produce the tallies of the military and federal families serving overseas.

Under the Census Bureau’s authorizing legislation, we currently use a variety of administrative records and third party data across many programs to accomplish our mission more efficiently, to save taxpayer money, and to produce innovative products, all while protecting privacy and confidentiality. We receive data from many federal agencies, such as the Internal Revenue Service, the Social Security Administration, the Postal Service, and the Centers for Medicare & Medicaid Services, as well as state governments and commercial vendors. Using administrative records is highly cost-effective and reduces the reporting burden on the American people by utilizing information they have already provided. All of this information is protected and is only used to create statistical products. We protect these data in the very same ways we protect the information we collect from individuals and businesses, through rigorous physical, procedural, and information security protocols that meet the Census Bureau’s legal obligations, as well as the obligations imposed by the tax code and other federal information security requirements, such as the Federal Information Security Management Act (FISMA).

Based on our knowledge and experiences with administrative records and commercial data, we want to expand our use of these data for the 2020 Census. We are exploring several options and two of the most promising are using these data to help manage and even reduce the field workload, which is historically the most expensive operation of the decennial census. The potential cost savings represented by this area of innovation is \$1.2 billion. We already tested some of our strategies for using these data in the 2013 and 2014 tests, and we are testing key enumeration approaches in Maricopa County, Arizona. We are specifically looking at administrative records to remove vacant housing units and to use the information on persons to enumerate occupied housing units, thereby removing them from the non-response follow-up (NRFU) operations.

For example, during the 2010 Census, the field workload included 50 million housing units. Each of these housing units received at least one in-person visit. Of these 50 million housing units, 14 million were vacant and another 5 million were deleted because they were either non-existent or were not in fact housing units. We sent an enumerator to each one of these more than 19 million housing units just to discover that there was no one living there to answer the questionnaire. By using data from the Postal Service and other agencies, such as the Internal Revenue Service (IRS), we believe we can determine whether housing units are vacant and remove these units from the field workload achieving substantial cost-savings.

As we proceed in this area of innovation, I want to assure you that we are moving methodically and purposefully, and in full consideration of our obligations to protect privacy and confidentiality. We asked our National Advisory Committee to form a working group and to advise on the privacy and quality implications of using these data, and we are also seeking stakeholder input through various forums.

To effectively implement these strategies, we not only have to effectively utilize the information we are already receiving from other government agencies, but we also need to seek new sources of information. In some instances, such as tax data, we need to work with the IRS to negotiate the most thorough, effective and direct use of the data to enumerate non-responding housing units. The Census Bureau is also currently evaluating several federal records sources with the intention of potentially negotiating agreements with agencies such as the Departments of Defense and Homeland Security.

However, one of the most important sources, the National Directory of New Hires (NDNH), is currently unavailable to the Census Bureau because we do not have access to these data under the Social Security Act. This database supplies information on workers, including the newly hired, which we could use to corroborate and supplement other information on workers received in the tax data. NDNH also includes information on persons receiving unemployment benefits, which we could use to improve our coverage of this hard-to-reach population. Last year, we developed draft language at the request of this Committee in consultation with the Department of Health and Human Services. The language provided limited access for the Census Bureau to use these data for statistical purposes and ensured protection of those data under the Census Law. In addition, the President's FY 2016 Budget also highlights our need for these data. Without

NDNH, we lose out on an information asset that could be critically valuable in achieving our cost-savings goal.

Ultimately though, we will have to send census takers into the field to enumerate the remaining non-responding households, which underscores the importance of the fourth area of innovation: better field operations. As part of the research and testing, including a particular focus of the 2015 Census Test in Maricopa, we are taking a deep look at our field staffing structure and we are testing out several technological innovations. The goal of reengineering our field operations is to use technology more efficiently and effectively to conduct and manage the 2020 Census field workload.

In previous censuses, we did not equip the enumerators with any type of automated device, relying instead on paper and pencil to collect all of the information out of the field, including census responses and the enumerator time and attendance. We had limited ability to communicate with the staff in the field, instead relying on in-person meetings or telephone calls between the enumerators and their supervisors. The supervisors had to meet with the census takers at least on a daily basis, if not more frequently, to collect the census responses and all the administrative paperwork, and then the supervisors had to take the paperwork to the local census offices. Ultimately, all of this time spent collecting paperwork was a significant contributor to the overall cost of the previous census field operations. Moreover, because we relied on paper, there was very little analytical capacity that could be used to better manage the staff or redirect resources.

We plan to develop a sophisticated operational control system that utilizes information effectively to manage tasks and assignments, which we had in the past left to humans using their best judgment. Our goals are to incorporate operational best practices including the optimization of daily assignments, intelligent routing, and real-time, responsive management of issues. We are working with the private sector again, including companies such as the United Parcel Service and Esri, to learn more about these types of best practices. We also intend to take full advantage of technology to send our enumerators out with mobile devices, rather than pencil and paper. They will use devices to collect responses and report their time and attendance, instead of the paper forms we used in 2010.

The four key innovation areas represent significant cost savings that can be achieved only if we get the opportunity to fully test these alternative methods in the next two years, which will allow us the opportunity to conduct an end-to-end test in 2018. To get there, we will release a design document, called a concept of operations, at the end of this fiscal year. This document will describe: the proposed operations; key decisions and the basis and working assumptions for current and future decisions; milestones for future decisions; research efforts; cost and quality trade-offs; and the IT capabilities necessary to support the operational implementation of the 2020 Census.

In reaching this point, we have received strong support from the Department of Commerce and the Office of Management and Budget. We have also received strong support from our overseers, including this Committee and the Government Accountability Office, as well as the Office of the Inspector General. We appreciate the opportunity to consult and receive guidance, especially as we plan, conduct, and evaluate the critical research and testing associated with

these areas of innovation, which we believe will generate even more refined and improved cost-estimates. We are also intent on improving our capabilities and skill sets in the area of cost estimation to further ensure the integrity of and support for the 2020 Census design moving forward. Finally, we also are committed to ensuring a transparent process, which incorporates comprehensive documentation and schedules, as a further measure to ensure the integrity of and support for the census.

I will close by reiterating the importance of the current testing and the continued research and testing, especially next year in FY 2016. We have very little time left to ensure the effective implementation of these innovations before we reach 2018, when the costs of the census begin to rise steeply. We need to conduct real-world tests now, not only to be ready, but also to ensure that we can maintain quality. These tests are leading us toward having complete methodological approaches and systems development for the end-to-end test in 2018. FY 2016 is also critically important to the 2020 Census timeline, because we will award several large contracts, such as the census questionnaire assistance and the advertising and partnership contracts.

Finally, FY 2016 is also important for the development of the key systems that we will use to support the infrastructure to handle data collection and processing. Known as the Census Enterprise Data Collection and Processing (CEDCaP) program, we are moving to a smarter, more cost-efficient enterprise level strategy to manage core information technology aspects for all of our censuses and surveys. In the past we have often built single one-off systems for the current surveys and the censuses. In the case of the decennial census, we built systems that were retired at the end of each census. Now, we intend to create an integrated shared-service, which we can use continuously across all of our programs, that is adaptive and scalable. The CEDCaP effort will streamline the collection and processing for the Census Bureau as an enterprise, which will save taxpayer money. It is crucial to the 2020 Census that resources are available to develop these systems in FY 2016; otherwise, we may not be ready for the end-to-end test in 2018.

As a final point, I must mention our commitment to protecting the privacy and confidentiality of individuals' information. The Census Bureau takes cyber security very seriously and we stand by our record. To protect our information systems and the information we collect, the Census Bureau has implemented a robust, comprehensive, and layered cyber security program. Some of the key points of the program are:

- The Census Bureau employs a Managed Trusted Internet Protocol Service on all external Internet links and it utilizes the Department of Homeland Security's resources that further protect Internet traffic, by looking for malicious code and suspicious activity on these links.
- Other key safeguards include 2-factor authentication to access the Census Bureau network remotely; use of encryption in transmissions of data and data at rest; use of a Data Loss Prevention solution, which looks at outbound email traffic to ensure no sensitive information is transmitted in an unencrypted state; use of firewalls, Intrusion Detection Systems and Intrusion Prevention Systems and a dedicated cyber security staff that monitors these systems and investigates unusual activity; and the use of a Virtual Desktop Infrastructure that provides further security.
- All Census Bureau systems are compliant per National Institute of Standards and Technology (NIST) Federal Standards and the Census Bureau. The Census Bureau security program

incorporates continuous monitoring of all IT systems, and we have implemented a Risk Management Framework (RMF) program that is fully compliant with NIST standards and guidelines documentation.

- Finally, all employees receive annual training on data stewardship and security.

From CEDCaP and cyber security to each of the tests, each activity plays a significant role in helping the Census Bureau to design an accurate and cost-effective 2020 Census. While the census is simple in concept, it is in reality a complex program, ranging over many years and many operations, which must be synchronized to meet our ultimate mandate. The savings we predict cannot be effectively implemented without the rigorous testing that is designed to inform development of the systems and operations and without your support.

Thank you and I hope this update has been informative, and I look forward to your questions.



United States Government Accountability Office

Testimony

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Security and Governmental Affairs,
United States Senate

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2020 CENSUS

Recommended Actions Need to Be Implemented before Potential Cost Savings Can be Realized

Statement of Carol Cha, Director, Information
Technology Acquisition Management Issues

Robert Goldenkoff, Director, Strategic Issues

GAO Highlights

Highlights of GAO-15-546T, a testimony before the Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

The cost of the decennial census has steadily increased each decade, with the 2010 Census being the most costly in history, totaling approximately \$13 billion. If the growth rate continues, the 2020 Census could cost approximately \$25 billion (in constant 2010 dollars). In an effort to contain costs while continuing to ensure an accurate enumeration, the Bureau is researching and testing new methods and technologies.

This September, the Bureau plans to announce its preliminary design for the 2020 Census, and in October 2018 the Bureau plans to have all systems and processes for the 2020 Census developed and ready for operational testing. As Census Day 2020 gets closer, the margin for schedule slippages is becoming increasingly narrow.

GAO was asked to testify on the Bureau's progress in implementing cost-savings initiatives and associated challenges for the 2020 Census. To prepare this statement, GAO relied on its previously published work in this area over the last several years.

What GAO Recommends

In its prior work, GAO made 121 recommendations to, among other things, assist the Bureau in planning for its Internet response option, completing key research and testing activities, and improving its IT management and security. The Bureau generally agreed with these recommendations.

View GAO-15-546T. For more information, contact Carol Cha at (202) 512-4456, chac@gao.gov or Robert Goldenkoff at (202) 512-2757, goldenkoffr@gao.gov.

April 20, 2015

2020 CENSUS

Recommended Actions Need to Be Implemented before Potential Cost Savings Can be Realized

What GAO Found

The Census Bureau (Bureau) has research and testing efforts well under way to support reforming aspects of the 2020 Census in order to contain costs. The table below briefly describes the four main cost-saving initiatives and the Bureau's associated savings estimates.

Description of initiative	Bureau's estimated cost savings (in billions)
Expanding use of data previously obtained by other government agencies to reduce the need for costly and labor-intensive follow-up work	\$1.2
Reengineering processes for updating the Bureau's address list and maps of the nation to reduce the need for employing field staff to walk every street in the nation to verify addresses	\$1.0
Reengineering of field operations to automate the management of enumerator work	\$2.3
Maximizing self-response of households by, among other things, offering an Internet response option	\$0.5
Total	\$5.0

Source: Census Bureau | GAO-15-546T

Note: GAO did not verify the Bureau's cost savings estimates.

However, the Bureau faces significant challenges and unanswered questions related to these initiatives and their associated cost-savings. For example, the Bureau needs to finalize decisions on: the use of data records from other government agencies; more cost-effectively maintaining complete and accurate map and address data; and the use of technology to more efficiently manage field operations. The Bureau also needs to take action on GAO's recommendations to develop reliable cost estimates and time frames for key decisions related to deploying the Internet self-response option.

The successful execution of the 2020 Census also depends on the effective implementation of a large and complex information technology (IT) development effort. This effort—the Census Enterprise Data Collection and Processing program—is intended to result in an interconnected set of systems to serve all the Bureau's data collection and processing functions, including the systems and infrastructure needed to support the 2020 Census cost-savings initiatives. But as GAO has reported, the Bureau has not always prioritized key testing and research activities needed to inform IT system development. GAO has also previously found weaknesses in the Bureau's management of IT, and made recommendations to address them. In response, the Bureau has made important improvements in the areas of governance, system development methodologies, requirements management, and workforce planning. However, more work remains to ensure that it has the critical skills needed to effectively deliver IT solutions and that its systems and information are protected from unauthorized access or tampering.

The Bureau needs to take action to address the recommendations GAO has made in prior reports. If these actions are not taken, cost overruns, schedule delays, and performance shortfalls will likely diminish the potential cost savings that the Bureau estimates will result from redesigning the census for 2020.

United States Government Accountability Office

Chairman Johnson, Ranking Member Carper, and Members of the Committee:

We are pleased to be here today to discuss the U.S. Census Bureau's (Bureau) cost-savings reform initiatives and associated challenges for the 2020 Decennial Census. This month marks a critical turning point in the decade-long countdown to the next decennial: half of the time available to prepare for the 2020 enumeration is now behind the Bureau, giving greater urgency and importance to the testing, operational, and procurement decisions that it will make in the months ahead. For example, this September, the Bureau plans to announce its preliminary design for the 2020 Census, and in October 2018 the Bureau plans to have all systems and processes for the 2020 Census developed and ready for end-to-end testing. As momentum builds toward Census Day 2020, the margin for schedule slippages is getting increasingly slim.

The cost of the decennial census has steadily increased during the past 40 years, in part because the nation's population has steadily grown larger, more diverse, and increasingly difficult to enumerate. For example, at about \$13 billion, the 2010 Census was the costliest U.S. census in history and was 56 percent more costly than the \$8.1 billion 2000 Census (in constant 2010 dollars). If that growth rate continues, the 2020 Census could cost approximately \$25 billion in 2020.

Given these trends, the fundamental management challenge facing the Bureau is how to control the cost of the next enumeration while maintaining its accuracy. This is why today's hearing is so timely: our past reviews of prior decennials have underscored the importance of early and ongoing congressional oversight for keeping census preparations on track. In our remarks today, we will describe progress the Bureau has made in major 2020 Census cost-saving initiatives and critical challenges the Bureau faces in successfully delivering these initiatives.

The information in our testimony is based on our previous reports on the 2010 Census, as well as those on the Bureau's planning efforts for 2020. For this work, we, among other things, analyzed key documents such as budgets, cost estimates, plans, schedules, procedures, and guidance for selected activities, and interviewed cognizant Bureau officials at headquarters and local census offices. We did not validate the Bureau's cost-savings estimates discussed in today's statement. In addition, for the work on the 2010 Census, we made on-site observations of key enumeration activities across the country, including both urban and less-populated areas. More detail on our scope and methodology is provided in each published report on which this testimony is based. We also obtained and reviewed information on the Bureau's actions in response to

our previous recommendations. We conducted our work in support of this testimony during April 2015.

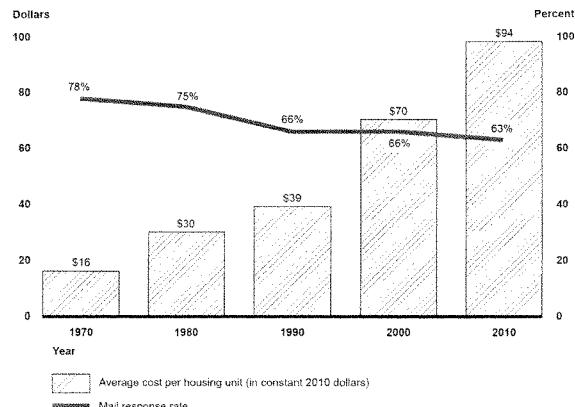
We conducted the work on which this statement is based in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The decennial census is mandated by the U.S. Constitution and provides data that are vital to the nation. This information is used to apportion the seats of the U.S. House of Representatives; realign the boundaries of the legislative districts of each state; allocate billions of dollars in federal financial assistance; and provide social, demographic, and economic profiles of the nation's people to guide policy decisions at each level of government.

As shown in figure 1, the cost of enumerating each housing unit has escalated from around \$16 in 1970 to around \$94 in 2010, in constant 2010 dollars (an increase of over 500 percent). At the same time, the mail response rate—a key indicator of a cost-effective enumeration—has declined from 78 percent in 1970 to 63 percent in 2010. In many ways, the Bureau has had to invest substantially more resources each decade just to try and match the results of prior enumerations.

Figure 1: The Average Cost of Counting Each Housing Unit (in Constant 2010 Dollars) Has Escalated Each Decade, while Mail Response Rates Have Declined



Source: GAO analysis of Census Bureau data (GAO-15-546T)

Note: In the 2010 Census the Bureau used only a short-form questionnaire. For this statement, we use the 1990 and 2000 Census short-form mail response rate when comparing 1990, 2000, and 2010 mail-back response rates. Census short-form mail response rates are unavailable for 1970 and 1980, so we use the overall response rate.

Beginning in 1990, we reported that rising costs, difficulties in securing public participation, and other long-standing challenges required a revised census methodology—a view that was shared by other stakeholders.¹ We and other organizations—including the Bureau itself—have stated that fundamental changes to the design, implementation, and management of the census must be made in order to address operational and organizational challenges.²

¹See for example, GAO, *2000 Census: Progress Made on Design, but Risks Remain*, GAO/GGD-97-142 (Washington, D.C.: July 14, 1997), and *Decennial Census: Preliminary 1990 Lessons Learned Indicate Need to Rethink Census Approach*, GAO/T-GGD-90-18 (Washington, D.C.: Aug. 8, 1990).

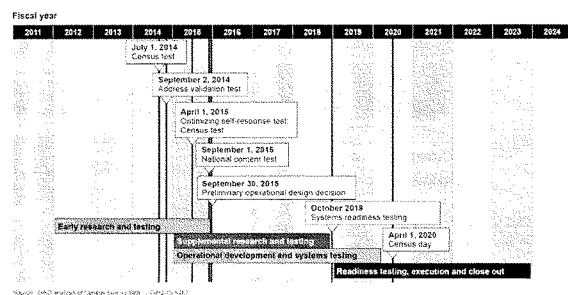
²GAO, *2020 Census: Sustaining Current Reform Efforts Will Be Key to a More Cost-Effective Enumeration*, GAO-12-905T (Washington, D.C.: July 18, 2012).

Accordingly, in preparation for the 2020 Census, the Bureau has been researching and testing new methods and technologies to more cost-effectively count the population while maintaining high-quality results. This includes conducting several major field tests that are intended to inform the September 2015 preliminary design decision. For example, in 2014 the Bureau tested new methods for conducting self-response and non-response follow-up (referred to as the 2014 Census Test) in the Maryland and Washington, D.C., area. The Bureau is also conducting tests in 2015 that are expected to inform the design decision, including

- the Address Validation Test, which was completed in early 2015 and was used to examine new methods for updating the Bureau's address list;
- the 2015 Census Test, which is currently being conducted in Arizona to test, among other things, reengineered non-response follow-up field operations, as well as enabling enumerators to use their personally owned mobile devices to collect census data; and
- the Optimizing Self Response Test, which is currently being conducted in Savannah, Georgia, and the surrounding area and is intended to further explore methods of encouraging households to respond using the Internet, such as using advertising and outreach to motivate respondents, and enabling households to respond without a Bureau-issued identification number.

Following its design decision, the Bureau plans to conduct additional research and testing and further refine the design through 2018. By September 2018, the Bureau plans to have fully implemented the design so that it can begin operational readiness testing. Figure 2 provides the timeline for planned 2020 Census research and testing.

Figure 2: 2020 Decennial Census Planned Research and Testing Schedule



Key Challenges Need to Be Addressed before Potential Cost Savings Can Be Realized

The Bureau has been making important progress in researching and testing various design options associated with four interrelated cost-savings initiatives: using data previously provided to the government to help enumerate the population, updating the Bureau's address list and maps of the nation, only where needed, reengineering management of field work, and maximizing self-response. Combined, the Bureau estimates these efforts could generate up to \$5 billion in cost savings and that the total life-cycle cost for the 2020 Census will be approximately \$12.7 billion.³ However, we have identified various challenges and unanswered questions in these areas that, if unresolved, could affect the accuracy of the count and put the estimated cost savings at risk. The Bureau has identified or acknowledged many of these issues and is working to address them.

³GAO did not verify the Bureau's cost savings estimates.

Research of Major 2020 Census Cost Savings Areas Is Well Under Way, but Challenges and Unanswered Questions Need to Be Addressed

Using Data Previously Provided to the Government

The Bureau incurs a large part of the census' cost while following up at residences that did not return a census questionnaire. To ensure a complete count, Bureau guidance in 2010 had enumerators visit some places up to six times to try to obtain a response. In addition to being costly, such follow-up can also affect the accuracy of the count, because when census enumerators cannot contact a household, they may turn to a neighbor or some other person knowledgeable about the household to obtain the data. However, this information may be less reliable than information provided by a household member. In addition, many residences are subsequently found to be vacant or nonexistent. For example, in one operation in 2010 with the purpose of verifying whether some housing units were vacant or should be deleted from the Bureau's address list, the Bureau visited nearly 9 million housing units at a cost of about \$280 million in labor and other expenses.⁴

To reduce the need for these costly operations and to increase accuracy, the Bureau is testing how it might be able to expand its use of information the government already has from the administration of other programs—administrative records. The Bureau is conducting these tests in Maricopa County, Arizona, this month and has further testing planned for 2016. Examples of administrative records include Social Security Administration data and Medicare records, as well as records from state, local, and tribal governments and commercial sources. The Bureau has previously made limited use of administrative records. For example, it used U.S. Postal Service files to update its address list. The Bureau estimates that using administrative records for the 2020 Census to reduce the number of in-person visits, local census offices, and operations needed has the potential to save \$1.2 billion.

Our ongoing work and our December 2010 report⁵ indicate that the Bureau will need to resolve a number of questions before it will be able to realize cost savings or improvements in data reliability from the use of such records, including the following:

⁴GAO, *2010 Census: Data Collection Operations Were Generally Completed as Planned, but Long-standing Challenges Suggest Need for Fundamental Reforms*, GAO-11-193 (Washington, D.C.: Dec. 14, 2010).

⁵GAO-11-193.

- **What records will meet the Bureau's needs?** The Bureau is exploring questions about the quality of other records and their completeness. Information contained in those records was collected for other purposes, so it may not always provide exactly what the Bureau needs. For example, while race and ethnicity data are collected in the census, the records available to the Bureau may not record this information. Likewise, while the Bureau needs the location of a residence for apportionment and other purposes, available records may only provide locations where people receive mail such as a post office box.
- **To what extent does the Bureau have access to these records for operational purposes?** Some of the data the Bureau may want to use is personally identifiable information collected for other specific purposes. In some cases, the Bureau may need to enter into agreements with other agencies or levels of government to obtain access. In other cases, legislative changes may be needed to provide the Bureau with the necessary access authority. The Bureau will need to be sensitive to the time involved for these efforts so that it has the access it may need in time for 2020.
- **To what extent will the public accept the sharing of personal data across government agencies for purposes of the census?** The Bureau and others have ongoing research exploring public perceptions on topics such as trust, the potential for decreased burden on respondents, and the social benefits of sharing data. This research is also exploring the factors relating to public outreach that the Bureau may need to focus on in order to enhance the public's acceptance of greater use of administrative records.

We have ongoing work examining the Bureau's efforts to research the use of administrative records for the 2020 Census, including the test in Maricopa County, Arizona. We anticipate issuing the results this fall.

Reengineering How to Update the Bureau's Address List and Maps of the Nation

The Bureau relies on a complete and accurate address list to identify all households that are to receive a census questionnaire. The address list also serves as the control mechanism for following up with non-responding households. Accurate addresses and precise maps are critical for counting the population in the proper locations—the basis of congressional reapportionment, redistricting, and allocations of federal aid to state and local governments. In prior decades the Bureau employed field staff to walk almost every street in the nation as one of several operations to update the Bureau's inventory of addresses and

geography—in 2013, we testified⁶ that the Bureau’s 2010 address canvassing operation required 140,000 temporary workers to verify 145 million addresses at a cost of \$444 million. The Bureau has relied on this operation to help identify hidden housing units—that is, people living in, for example, converted basements or lofts—as well as changes to the address list such as from newly constructed or demolished residences.

To reduce the scope of this operation, the Bureau is focusing on areas that it believes have experienced change, such as rapid recent housing development, and for which the Bureau has no data sources capturing those changes. The Bureau is working with the U.S. Postal Service, other federal agencies, and state, local, and tribal governments on an initiative that allows government agencies at all levels to regularly share and continuously update their address lists and road data with the Bureau. To help fill in gaps and better target reduced resources, in January 2015 the Bureau solicited information from commercial firms on their capabilities to detect changes in addresses in local areas. Additionally, in February 2015 the Bureau solicited commercial proposals to provide national address or imagery datasets. The Bureau recently completed tests of some modeling methods to help identify where updates are most needed, and has additional tests planned for 2016. The Bureau estimates it will save up to \$1 billion with the successful implementation of this initiative.

Going forward, the Bureau’s success at more efficiently updating its address list and maps depends on how it resolves questions such as the following:

- **Which map and address data sources are the most cost-effective?** In October 2014, we found that the Bureau needed to implement processes for reviewing the cost and quality of data source selections and for documenting support for those decisions while documenting management approval of key data source decisions.⁷ The Bureau agreed with our corrective recommendations and is taking steps to address them. The Bureau has ongoing research to determine how best to measure cost and quality tradeoffs in data sources.

⁶GAO, *2020 Census: Progress Report on the Census Bureau’s Efforts to Contain Enumeration Costs*, GAO-13-857T (Washington, D.C.: Sep. 11, 2013).

⁷GAO, *2020 Census: Census Bureau Can Improve Use of Leading Practices When Choosing Address and Mapping Sources*, GAO-15-21 (Washington, D.C.: Oct. 2, 2014).

- **Will the Bureau be able to complete a nationwide continuous update of its addresses and maps in time for 2020?** With over 3,200 counties in the country, in addition to other local and state governments the Bureau might be partnering with, the Bureau has much work to do. In October 2014, we recommended that the Bureau develop a detailed plan with measurable goals for the updating initiative and track performance against these goals.⁸ The Bureau agreed with our recommendations and is taking steps to address them. In November 2013, we also reported on weaknesses in the Bureau's scheduling practices related to its address list development activity. The Bureau recently announced it had improved the organization of its entire 2020 Census schedule to at least in part respond to these concerns.
- **How will the Bureau decide where to conduct door-to-door canvassing?** Removing geographic areas from the possible door-to-door canvassing workload requires being able to predict which areas are stable and which areas have undetected change. The Bureau is investigating a variety of statistical models and other novel approaches, such as the use of automated tools to scan aerial imagery for new developments, to inform how to target resources.

Reengineering the Management of Field Operations

The Bureau is researching and testing ways to more efficiently and effectively manage its multiple field operations for the 2020 Census. For example, the Bureau is researching ways to use an operational control system that automatically manages tasks and decision-making, such as case assignment and prioritization. The Bureau is also researching use of mobile devices to collect data in the field, automated human resources functions (e.g., payroll, recruiting), automated training, and reorganization of the roles of field managers. The Bureau is actively testing each of these changes alongside more traditional methods in its ongoing test in Arizona. These changes could reduce the costs for staff, training, and paper processing as well as the number of temporary census offices. The Bureau estimates it could save up to \$2.3 billion with the implementation of this initiative.

We have previously testified to this Committee about the importance of the Bureau's organizational culture and human capital planning in enabling management to achieve cost savings with its business practices

⁸GAO-15-21.

and systems.⁹ The Bureau is taking many steps that show promise, such as with its internal reorganization, and its efforts to identify critical skills gaps as we discuss later in the statement. If the Bureau is to attain the tremendous cost savings that it estimates from its field management reengineering efforts, it will need to resolve questions such as:

- **Will the Bureau be able to fully test systems, procedures, field operations and people in time for 2020?** Prior to the 2010 Census, concerns about the testing of key operations under census-like conditions led us to designate that census a high-risk program. It will be important for the Bureau to make progress in all areas of field reengineering so that it is ready for its planned end-to-end testing in 2018.

Later this year, we plan to review the Bureau's efforts in this cost savings area, as well as the IT systems that will heavily support this initiative.

Maximizing Self-Response and Offering an Internet Option

To hold down costs, the Bureau will need higher rates of public participation, because that will reduce the need for enumerators to visit non-responding households. According to the Bureau, for the 2010 Census, approximately 635,000 employees were hired for non-response follow-up at a cost of more than \$1.6 billion. As previously mentioned, the Bureau is conducting a test in Savannah, Georgia, and the surrounding area to explore ways to encourage households to respond using the Internet with advertising and outreach. These efforts have the potential to save money by reducing the need for enumerators, printing, postage, and paper, and can speed up data collection. The Bureau estimates these efforts could save around \$500 million.

We reported in February 2015¹⁰ that the Bureau's efforts to deliver an Internet response option were under way. These efforts included developing a web application for use in major field tests, as well as researching methods for promoting the Internet response option and allowing households to respond online without a Bureau-issued identification number (to authenticate respondents). However, the Bureau had yet to establish reliable estimates of how much it will cost to deliver an Internet response option. Moreover, the Bureau did not have

⁹GAO, *2010 Census: Preliminary Lessons Learned Highlight the Need for Fundamental Reforms*, GAO-11-496T (Washington, D.C.: Apr. 6, 2011).

¹⁰GAO, *2020 Census: Key Challenges Need to Be Addressed to Successfully Enable Internet Response*, GAO-15-225 (Washington, D.C.: Feb. 5, 2015).

integrated schedules for completing the work, nor did it have plans and time frames for addressing IT infrastructure scalability needs. For example, the Internet response option for the 2020 Census is expected to require a much greater data processing and storage capacity than the Bureau's existing IT infrastructure can support, and Bureau officials stated that they plan to use a cloud environment to provide the increased IT infrastructure.¹¹

The Bureau was not positioned to answer research questions critical to determining how much larger it should scale its IT infrastructure in time for the upcoming September 2015 design decision. We also found the Bureau had not yet established high-level time frames for when key cloud computing decisions needed to be made. Bureau IT Directorate officials stated that they had not yet established time frames due to a lack of internal cloud computing expertise and that they were planning to use a contractor to assist in assessing cloud computing technologies for the 2020 Census. While this assistance may be helpful, without, at a minimum, high-level time frames, the Bureau will not know whether there is enough time to successfully acquire and implement a cloud solution for the 2020 Census.

In our February 2015 report, we recommended that the Bureau update estimated costs for the Internet response option and ensure future cost estimates are reliable, develop methodologies for answering key research questions, and establish high-level time frames for cloud computing decisions. The Bureau neither agreed nor disagreed with the recommendations but identified actions to address some of them. For example, the Bureau stated that it planned to revise the 2020 Census cost estimate once the September 2015 design decision is made. The Bureau also stated that it had established a plan and implementation team—the 2020 Census Concept of Operations—to document results of the design decision, including the Internet self-response rate and key dates for making decisions.

In addition to these challenges, the Bureau will need to resolve other operational questions before it can realize cost savings in this area, including the following:

¹¹Cloud computing is a means for establishing on-demand access to shared and scalable pools of computing resources.

- **What methods work best to convince diverse audiences to self-respond in a digital environment?** In the Savannah, Georgia, test, the Bureau is exploring how to target various audiences through social media, such as Twitter and Facebook, and the effect on response rates over the Internet.
- **How can non-Internet response options be improved, for those without access to the Internet?** The Bureau has historically provided support for completing questionnaires at locations within communities and over the telephone. The Bureau will need to examine how if at all it can improve such efforts to help people complete their questionnaires.

Major 2020 Census Cost Saving Initiatives Rely on, among Other Things, Effective Implementation of a Large and Complex IT Development Effort

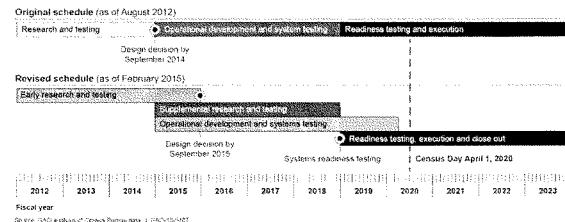
In October 2014, the Bureau initiated an enterprise-wide IT initiative called the Census Enterprise Data Collection and Processing (CEDCAP) program, which is intended to deliver a "system of systems" to serve all of the Bureau's survey data collection and processing functions—rather than continuing to build and maintain unique, survey-specific systems with redundant capabilities. Most importantly for the 2020 Census, CEDCAP is expected to deliver the systems and IT infrastructure needed to implement the Bureau's cost-savings initiatives. For example:

- To reengineer field work, CEDCAP is expected to implement a new dynamic operational control system to track and manage field work that can make decisions on which visits enumerators should attempt on a daily basis using real-time data, as well as provide automated route planning to make enumerator travel more efficient. CEDCAP also includes testing the use of mobile devices, either government-furnished or employee-owned, to automate data collection in the field.
- To maximize self-response with the use of the Internet response option, CEDCAP is responsible for developing and testing a web-based survey application and exploring options for establishing the IT infrastructure to support the increased volume of data processing and storage.

CEDCAP is a large and complex modernization program, consisting of 14 projects that are to deliver CEDCAP capabilities incrementally, through the deployment of over 10 versions. The Bureau expects to reuse selected systems, make modifications to other systems, and develop or acquire additional systems and infrastructure. As of March 2015, the CEDCAP program was projected to cost about \$548 million through 2020.

The September 2015 design decision that is expected to result from the Bureau's ongoing research and testing is also intended to drive the business requirements for the systems and infrastructure that CEDCAP will be expected to deliver. However, as noted in our April 2014 report, the Bureau had not prioritized key IT research and testing needed for the fast-approaching September 2015 design decision.¹² Specifically, the Bureau was not completing the necessary plans and schedules for research and testing efforts and prioritizing what needs to be done by September 2015—a milestone that had already been pushed back by a year (see fig. 3) and cannot afford to slip further. We concluded that, given the current trajectory and the lack of supporting schedules and plans, it was unlikely that all planned IT-related research and testing activities would be completed in time to support the September 2015 design decision.

Figure 3: Original and Revised Schedules for 2020 Decennial Census Design Decision



These findings were particularly concerning since we had reported in November 2012 that, during the early stages of research and testing, key research and testing project plans were incomplete.¹³ Even though we recommended at that time that the Bureau ensure that documentation for projects was complete and the Bureau agreed, incomplete project plans continued to be an issue 2 years later.

¹²GAO, 2020 Census: Prioritized Information Technology Research and Testing Is Needed for Census Design Decisions, GAO-14-389 (Washington, D.C.: Apr. 3, 2014).

¹³GAO, 2020 Census: Initial Research Milestones Generally Met but Plans Needed to Mitigate Highest Risks, GAO-13-53 (Washington, D.C.: Nov. 7, 2012).

In light of these ongoing challenges, we recommended in our April 2014 report that the Bureau prioritize its IT-related research and testing projects that need to be completed to support the design decision and develop schedules and plans to reflect the new prioritized approach. The Bureau agreed with our recommendations and has taken steps to address them. For example, in September 2014, the Bureau released a plan that identified inputs, such as research questions, design components, and testing, that was needed to inform the September 2015 design decision.

However, as we reported in February 2015,¹⁴ the Bureau had not yet determined how key IT research questions that had been identified as critical inputs into the design decision—estimating the Internet self-response rate and determining the IT infrastructure for security and scalability needed to support Internet response—were to be answered. Bureau officials stated that they had begun to establish projects responsible for addressing these questions, but they did not have time frames for when these new projects would develop a planned research methodology. We emphasized that, with 8 months remaining until the design decision was to be made and major tests already designed or completed, the Bureau had limited time to determine how these critical questions would be answered to inform a key design decision.

Given the Bureau's prior and existing challenges, as well as the importance of CEDCAP to the successful delivery of an accurate, efficient, and secure 2020 Census, we identified CEDCAP as an IT investment in need of attention in our February 2015 High-Risk report.¹⁵ We plan to conduct a review of the CEDCAP program for this Committee later this year.

Census Bureau Has Demonstrated Improvements in IT Management, but Faces Critical Gaps in IT Workforce and Information Security

As we have previously reported, the Bureau's past efforts to implement new approaches and IT systems have not always gone well. For

¹⁴GAO-15-225.

¹⁵Every 2 years at the start of a new Congress, GAO calls attention to agencies and program areas that are high risk due to their vulnerabilities to fraud, waste, abuse, and mismanagement, or are most in need of transformation. As part of a new entry into the February 2015 update to our High-Risk Series focused on improving the management of IT government-wide, we identified CEDCAP as an IT investment—among others across the federal government—in need of the most attention. See GAO, *High-Risk Series: An Update*, GAO-15-290 (Feb. 11, 2015).

example, leading up to the 2010 Census, fundamental weaknesses in key IT management practices contributed to the Bureau not being able to successfully deploy custom-developed handheld enumeration devices for non-response follow-up, which increased the cost of that Census by up to \$3 billion. The Bureau has made progress in practices related to IT governance and requirements management, but more work is needed to address critical workforce gaps and information security.

Progress Made in IT Governance and Requirements Management

Institutionalizing key IT management controls, such as IT governance, system development methodology, and requirements management processes, helps establish a consistent and repeatable process for managing and overseeing IT investments and reduces the risk of experiencing cost overruns, schedule slippages, and performance shortfalls, like those that affected the previous census.

The Bureau has made progress in strengthening these areas in response to recommendations we made in September 2012.¹⁶ Specifically, we found that the Bureau lacked a sufficiently mature IT governance process to ensure that investments are properly controlled and monitored, and did not have a comprehensive system development methodology, and that effective requirements management continued to be a long-standing challenge for the Bureau. We made several recommendations to address these issues, and the Bureau took actions to fully implement all of them. For example, the Bureau

- addressed gaps in policies and procedures related to IT governance, such as establishing guidelines on the frequency of investment review board meetings and thresholds for escalation of cost, risk, or impact issues;
- finalized its adoption of an enterprise system development life-cycle methodology, which included the short incremental development model, referred to as Agile, and a process for continuously improving the methodology based on lessons learned; and
- implemented a consistent requirements development tool that includes guidance for developing requirements at the strategic mission, business, and project levels and is integrated with its enterprise system development life-cycle methodology.

¹⁶GAO, *Information Technology: Census Bureau Needs to Implement Key Management Practices*, GAO-12-915 (Washington, D.C., Sept. 18, 2012).

As a result, the Bureau has established a consistent process for managing and overseeing its IT investments.

IT Workforce Planning Has Improved, but Critical Gaps Continue to Exist

Effective workforce planning is essential to ensure organizations have the proper skills, abilities, and capacity for effective management. While the Bureau has made progress in IT workforce planning efforts, many critical IT competency gaps remain to be filled. In September 2012 we reported, among other things, that the Bureau had not developed a Bureau-wide IT workforce plan; identified gaps in mission-critical IT occupations, skills, and competencies; or developed strategies to address gaps.¹⁷

Accordingly, we recommended that the Bureau establish a repeatable process for performing IT skills assessments and gap analyses and establish a process for directorates to coordinate on IT workforce planning. In response, in 2013 the Bureau completed an enterprise-wide competency assessment and identified several mission-critical gaps in technical competencies. In 2014 the Bureau established documents to institutionalize a strategic workforce planning process, identified actions and targets to close the competency gaps by December 2015, and established a process to monitor quarterly status reports on the implementation of these actions.

These are positive steps in establishing strategic workforce planning capabilities; however, more work remains for the Bureau to close competency gaps critical to the implementation of its IT efforts. As we reported in February 2015, the Bureau's workforce competency assessment identified several mission-critical gaps that would challenge its ability to deliver IT-related initiatives, such as the IT systems that are expected to be delivered by CEDCAP.¹⁸ For example, the Bureau found that competency gaps existed in cloud computing, security integration and engineering, enterprise/mission engineering life-cycle, requirements development, and Internet data collection. The Bureau also found that enterprise-level competency gaps existed in program and project management, budget and cost estimation, systems development, data analytics, and shared services. The Bureau's efforts to monitor the status of its efforts to close these competency gaps will be critical to ensuring

¹⁷GAO-12-915.

¹⁸GAO, *2020 Census: Key Challenges Need to Be Addressed to Successfully Enable Internet Response*, GAO-15-225 (Washington, D.C.: Feb. 5, 2015).

the Bureau has the skills it needs to effectively deliver IT solutions for the 2020 Census.

Limited Assurance That Information Systems Are Adequately Secured

Critical to the Bureau's ability to perform its data collection and analysis duties are its information systems and the protection of the information they contain. A data breach could result in the public's loss of confidence in the Bureau, thus affecting its ability to collect census data. To ensure the reliability of their computerized information, agencies should design and implement controls to prevent, limit, and detect unauthorized access to computing resources, programs, information, and facilities.¹⁹ Inadequate design or implementation of access controls increases the risk of unauthorized disclosure, modification, and destruction of sensitive information and disruption of service.

In January 2013, we reported on the Bureau's implementation of information security controls to protect the confidentiality, integrity, and availability of the information and systems that support its mission.²⁰ We concluded that the Bureau had a number of weaknesses in controls intended to limit access to its systems and information, as well as those related to managing system configurations and unplanned events. We attributed these weaknesses to the fact that the Bureau had not fully implemented a comprehensive information security program, and made 115 recommendations aimed at addressing these deficiencies.²¹ The Bureau expressed broad agreement with the report and said it would work to find the best ways to address our recommendations.

However, to date, the Bureau has fully addressed only 19 of the 115 recommendations, and while it is making progress on others, significant work remains. For example, the Bureau has implemented elements of a comprehensive information security program, such as establishing appropriate policies and procedures, providing security awareness

¹⁹Access controls include those related to (1) protection of system boundaries, (2) identification and authentication, (3) authorization, (4) cryptography, (5) audit and monitoring, and (6) physical security.

²⁰GAO, *Information Security: Actions Needed by Census Bureau to Address Weaknesses*, GAO-13-63 (Washington, D.C.: Jan. 22, 2013). Another version of this report was issued for limited distribution.

²¹This included 13 public recommendations and 102 recommendations for limited distribution.

training, and addressing incident response weaknesses; however, among many other things, it is not yet comprehensively assessing risk.

Given that the Bureau is considering using IT systems to collect the public's personal information for the 2020 Census in ways that it has not in previous censuses (e.g., web-based surveys, cloud computing, and enabling enumerators to use their personally owned mobile devices to collect census data), implementing our security recommendations from over 2 years ago must be a high priority. Until then, the Bureau will have limited assurance that its information and systems, including those needed for the 2020 Census, are being adequately protected against unauthorized access, use, disclosure, modification, disruption, or loss.

In summary, the Bureau is pursuing initiatives to significantly reform its outdated and inefficient methods of conducting decennial censuses. However, with only 3-and-a-half years remaining until the Bureau plans to have all systems and processes for the 2020 Census developed and ready for end-to-end system testing, the magnitude of the planned changes, the Bureau's prior track record, and existing challenges, the 2020 Census program faces significant risk. As the Bureau approaches the September 2015 preliminary decision deadline, it needs to ensure that it only commits to what its capacity can truly accommodate. In addition, the Bureau will need to ensure that quality and information security are effectively managed in a census design that may entail significant change. Moreover, the Bureau needs to take action to address the specific challenges we have highlighted in prior reports. If these actions are not taken, cost overruns, schedules delays, and performance shortfalls may diminish the potentially significant cost savings that the Bureau estimates will result from redesigning the census for 2020.

Chairman Johnson, Ranking Member Carper, and Members of the Committee, this completes our prepared statement. We would be pleased to respond to any questions that you may have.

Post-Hearing Questions for the Record
Submitted to The Honorable John Thompson
From Senator Cory A. Booker

“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”

April 20, 2015

1. The U.S. Census Bureau counts people at their “usual residence” for census purposes. As a result, incarcerated people are counted as residents of the place where their prison is located. However, in the context of Congressional redistricting, this means that localities in which large correctional facilities are located gain population and localities in which a prisoner had been living at the time of admission lose population. This practice could have unintended consequences. For example, given the racial disparities in our prisons, this policy could result in the representation of minority communities being diluted.
 - a. Why does the Census Bureau choose to count prison inmates for census purposes in prisons, as opposed to the individual’s permanent residence prior to incarceration? Please explain in detail.
 - b. Given that incarcerated people are unable to vote in the place where they are counted, usually lack ties to those communities, and the communities from where they originated lose voting power by not having inmates counted for census purposes in their own districts, doesn’t it make more sense to count them in the location where they primarily reside when not incarcerated? If not, why?
 - c. Is your agency planning to reexamine its rule that incarcerated people are counted as residents of the place where their prison is located? If not, why?

ANSWER: The goal of the decennial census is to count everyone living in the United States once and in one place. Our basic residence rule since the first census in 1790 has been to count all people where they usually live and sleep as of Census Day. In practice, this has meant that we count those living in group quarters, such as prisons, dorms, and nursing homes, at the facility. Specifically regarding the issue of where to tabulate prisoners, the Congress asked the Census Bureau to study this issue in 2006. The results of that study are documented in this report to the Congress: https://www.census.gov/newsroom/releases/pdf/2006-02-21_tabulating_prisoners.pdf. The report also summarizes Supreme Court cases brought over this matter. Every decade, we reexamine our procedures and processes to see if they are still the best way to conduct the decennial census. We issued a *Federal Register* notice on May 20, 2015 requesting public comment through July 20, 2015 on the 2010 rules to inform our 2020 decisions. We encourage input from as many people as possible to ensure the Census Bureau is well informed about how people interpret and define their living situations. The Census Bureau anticipates publishing the final 2020 Census residence rules in late 2017. We will not make significant changes or final decisions about any of these rules without extensive discussions with our stakeholders, including the Congress.

Post-Hearing Questions for the Record
Submitted to The Honorable John Thompson
From Senator Heidi Heitkamp

“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”
April 20, 2015

1. Throughout your testimony, you discussed the use of technology to ensure that every American is counted in during the Census. However, there are communities within the country which have a history of being undercounted in what is now known as the Census Coverage Measurement program (previously the Post Enumeration Survey in 1990, and the Accuracy and Coverage Evaluation in 2000). In the 1990 census, the Post Enumeration Survey showed a 12.22% undercount of American Indians on reservations. The Accuracy and Coverage Evaluation of the 2000 census showed an over count of 0.88% of American Indians on reservations. The Census Coverage Measurement program results, released May 22, 2012, showed an undercount of 4.88% of American Indians on reservations.
 - a. Considering the importance of the census data in determining the distribution of federal funds, how do we ensure that an already disadvantaged group is not further harmed by the systemic undercounting of its members?
 - b. What steps are being taken at the Census Bureau to ensure that American Indians living on reservations are counted correctly?
 - c. What lessons can we learn from the 2000 census to ensure that we do not, once again, see the undercount results which were reported from the 2010 census?

ANSWER: The Census Bureau is planning a 2020 Census that modernizes operations and saves money over the cost of the 2010 design without sacrificing data quality. The cost-saving innovations will enable us to direct additional efforts for hard-to-count populations, building on what was effective in 2010, such as the Tribal Liaison program. Testing planned for FY2016 and FY2017 will continue our work in those areas, targeting populations with language diversity, low English proficiency, and high vacancy rates. Site selection criteria for the 2016 Address Canvassing Test and the 2017 Census Test currently include an American Indian reservation.

We are also working with the American Indian community to identify the communication channels and outreach methods that will most effectively promote participation. We are analyzing the 2010 Census enumeration of reservations, and previous decennial census efforts, and applying those lessons learned as we move forward. Beginning in the fall of 2015, the Census Bureau will conduct a number of consultations with Federally-recognized tribes to work on these issues. These meetings are scheduled to coincide with larger regional and national tribal conferences, allowing us to consult with other key stakeholder and advocacy groups. Planning for American Indian enumeration in the 2020 Census will also benefit from ongoing collaboration with the U.S. Department of the Interior on improving data on native populations.

2. **Census data currently shows that from April 1, 2010 to July 1, 2014 there has been a 9.9% population increase in the state of North Dakota. This is no doubt a result of the rapid expansion of oil production operations in western North Dakota on the Bakken Oil Field. However, many of the oil field workers are not full time residents of the North Dakota and travel to the state for a portion of the year to work in the oil fields, before returning home. Additionally, because many of these temporary workers claim residency in other states it puts a great strain on state resources, as these individuals are not considered when federal funds are distributed to states.**
 - a. **How is the Census Bureau planning to manage the transient nature of so many of the members of these western North Dakota communities?**

ANSWER: The goal of the decennial census is to count everyone living in the United States once and in one place. Our basic residence rule since the first census in 1790 has been to count all people where they usually live and sleep as of Census Day. For people whose usual residence may not be obvious, the Census Bureau offers guidance on where a person should be counted based on their living situation. For people who do not have or cannot determine a usual residence, they should be counted where they are on Census Day. For example, a situation where there can be ambiguity is for people who live away from their home for extended periods of time while working. Individuals in this situation should be counted where they live and sleep most of the time. Every decade, we reexamine our procedures and processes to see if they are still the best way to conduct the decennial census. We issued a *Federal Register* notice on May 20, 2015 requesting public comment through July 20, 2015 on the 2010 rules to inform our 2020 decisions. We encourage input from as many people as possible to ensure the Census Bureau is well informed about how people interpret and define their living situations. The Census Bureau anticipates publishing the final 2020 Census residence rules in late 2017. We will not make significant changes or final decisions about any of these rules without extensive discussions with our stakeholders, including the Congress.

2. **Does the Census Bureau have a plan in place to account for the temporary workers while maintaining an accurate count of North Dakota's full time residents?**

ANSWER: We share the same goal and objectives, and will deploy operations to identify and include temporary workers in every state —whether it is new energy development work in North Dakota, or agricultural workers who move frequently throughout the Nation. That is why it is so important to solicit a wide range of suggestions (through the *Federal Register* notice described above) for addressing this and other complex residence situations as we work to update our residence rules. We will use a variety of methods to encourage participation in the 2020 Census, and to help people understand our residence rules. As in the 2010 Census, these will encompass efforts like our communications, partnership, and help line programs.

3. The Census Bureau has previously committed to reduce costs by utilizing private sector mapping sources. Additionally, the Bureau has begun a RFP process that includes three components, one of which is the road network data.

a. How much can we expect to save by using private sector road network data?

ANSWER: One of our key goals and areas of research for the 2020 Census is to reduce the need for a nationwide in-field, in-person address canvassing operation. We estimate we can save \$1 billion by developing alternative methodologies for updating the Master Address File (MAF)/Topologically Integrated Geographic Encoding and Referencing (TIGER) System throughout the decade using a combination of in-field and in-office techniques. Some of these efforts likely will make use of private-sector road and address information, as well as information we can obtain from state, local, and tribal governments.

b. What is the status of contracting with the private sector?

c. What is the schedule?

d. What is the decision making process/criteria for choosing mapping companies?

ANSWER: The Census Bureau conducted market research on utilizing private sector mapping sources in FY 2014 and FY 2015. The Census Bureau issued Request for Information (RFI) YA1323-15-KB-0003 to better understand the current state of the market for providing change detection services.

Based on its market research, the Census Bureau is issuing three Request for Proposals (RFP):

- 1) *RFP_CENSUS2015-GEO0227 Geospatial Data* was released on February 27, 2015. The RFP solicits national datasets for housing unit addresses and associated geographic coordinates, street centerline data, and remotely sensed satellite and/or aerial imagery data on either a one-time basis or with, additionally, transaction updates throughout the contract lifecycle. The vendor responses currently are under evaluation; contract awards (multiple awards are anticipated) will be executed this fiscal year.

The overall evaluation process for this RFP is a Phase I Down Select Process followed by a Phase II Final Selection. Vendors submit proposals describing their capabilities in meeting the requirements of the RFP. The Technical Evaluation Team identifies a pool of Best Qualified Vendors and based on their recommendation some number of vendors are invited to participate in Phase II. Phase II consists of the submittal of sample datasets for specified areas for the Technical Evaluation Team review and a vendor oral presentation. The technical evaluation factors include: (1) sample dataset accuracy and coverage, (2) similar experience, (3) technical approach, and (4) past performance. The Price Evaluation Team reviews the final factor (5) price. Awards are made following a consideration of strengths, weaknesses and risks and are based on a best value evaluation.

- 2) *RFP - Change Detection Services*. The Census Bureau anticipates releasing this RFP in FY2015 with the contract award occurring in FY 2015. The RFP will solicit proposals identifying change detection solutions for determining where housing unit addresses and

associated attributes, housing unit structure location coordinates and any associated attributes, and street centerline data (spatial and non-spatial) need to be collected throughout the 5-year contract lifecycle. This RFP will help the Census Bureau identify areas where existing data do not accurately reflect changes on the landscape. Evaluation criteria are being formulated.

3) RFP - On-demand Address and Spatial Data Collection Services. The Census Bureau anticipates releasing this RFP in FY 2015 and awarding the contract in FY2016. The RFP will solicit proposals that seek services for collecting additional address and spatial data to complete the address list and street network within specified accuracy requirements for limited areas that could occur anywhere in the Nation due to identified needs including catastrophic events. Evaluation criteria are being formulated.

4. Several major companies have developed highly successful businesses out of creating and selling maps. Should the Census Bureau consider getting out of the map making business – specifically, maintaining the expensive infrastructure necessary to maintain their duplicative maps?

ANSWER: The Census Bureau evaluates and leverages resources from the private sector where possible. The Census Bureau has the unique mission of counting every person in the right place, an endeavor that requires access to and use of the most current and complete address and related geospatial data to support data collection, tabulation, and publication functions. To be successful in its mission, the Census Bureau must develop and maintain a comprehensive address frame to support the decennial census and other current surveys. The address frame must include high quality data for all areas of the country including traditionally hard to enumerate areas such as tribal lands. To ensure the level of quality and completeness required, targeted field data collection is necessary and remains confidential under U.S. Code Title 13. As designated by OMB Circular A-16, the Census Bureau is required to collect and maintain the legal boundaries of all governments in the nation. As a result, the Census Bureau has the infrastructure to efficiently and effectively provide sampling frames (addresses and areas), operational control systems, custom maps and geographic information (e.g., GPS coordinates), and other needs for a wide variety of censuses and surveys, including many conducted on behalf of other Federal agencies.

- a. **What are the major issues/concerns you see in using private sector map data?**
- b. **What is the best way to go about expanding use of private sector companies in the mapping processes of the Census Bureau?**

ANSWER for 4a and 4b: The Census Bureau recognizes the significant advances made in map data by private companies, many of whom got their start by using the Census Bureau's Topologically Integrated Geographic Encoding and Referencing (TIGER) data. Our primary concerns focus on the Census Bureau's need for complete coverage of the Nation, current and

accurate map data, documented quality of the data, and map data that can be shared with the public. We look forward to partnering with governmental units and private sector firms that can help meet these needs. For example, we recently released two RFIs, an RFP, and have two additional RFPs in process, to help us evaluate and use, where possible, private sector information and services.

Post-Hearing Questions for the Record
Submitted to The Honorable John H. Thompson
From Senator Claire McCaskill

“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”

April 20, 2015

I have heard from some constituents, particularly in rural communities, that, since Census switched from the long form to the American Community Survey (ACS) there have been some data anomalies, including large increases in income levels of some small, poor, rural communities or drastic differences in income levels between adjoining counties. For example, in Howard County, Missouri, the city of Armstrong's income went from \$24,167 in 2000 to \$42,188 in 2010, a 75% increase. It is highly unlikely that change accurately reflects the income levels in the community.

When the Census bureau moved to the ACS, it started gathering data on a rolling basis every year rather than waiting for the decennial Census. But on a year to year basis, fewer people get the ACS than got the Census long form.

The ACS goes to about 3.5 million annually, and Census publishes data on really small communities every 5 years. So the information Census is publishing on these communities is based on surveys of approximately 17.5 million addresses.

The Census long form used to go to 1 of every 6 households, or about 50 million addresses. My concern is that, while the data collected for the ACS may meet statistical definitions of accuracy, the data for small, rural communities may be getting skewed by the smaller samples in the ACS.

This is having a real impact on some communities' ability to get grant funding. The amount of grant versus loan funding a community is eligible for under the Community Development Block Grants, for example, depends on the income level of the county.

- Q. Has Census seen or heard any other evidence of big shifts in income data that do not accurately reflect changes in a community's living standards since moving to the ACS? If so, has Census
- Q. Do you work with local regional planning commissions or community leaders to make sure that your data accurately represents the communities? If not, will you pledge to work with them going forward to ensure that ACS data accurately reflects the communities, and, if it doesn't to make the necessary corrections to the sampling methodology?
- Q. Will you pledge to conduct a review of the ACS's sampling methodology to ensure that it is not misrepresenting changes to income levels in small communities?

ANSWER: The Census Bureau aims to provide the best data possible about our Nation's communities. We work closely with local communities and others to encourage households to respond fully to the survey and to help ensure that we have the most complete and accurate sampling frame of addresses.

When we receive concerns about a local community's numbers, we research the concern to help ensure the data collected supported the estimates we release. Following up on the Armstrong City, Missouri example, we first note that this is a small city of approximately 300 people, and thus estimates created for small areas such as this tend to have higher margins of error. The median income from the 2006-2010 5-year American Community Survey (ACS) data was \$42,188 with a margin of error of \$19,695. In other words, the data support a median income that could be as low as \$22,493 or as high as \$61,883. With such a large margin of error, the differences in the point estimates from 2000 (\$24,167) and 2010 (\$42,188) are not statistically significant.

It is important to note that the ACS estimates have the advantage of being released every year. The Decennial Census long form data (which also were based on a sample of households, so also were subject to sampling error) were released only once every 10 years (with the first release roughly two years after the Census), so over the course of a decade became quickly out of date.. Before the ACS, vital statistics about an area's economic well-being were essentially frozen at levels measured anywhere from two to 12 years earlier. Sampling error cannot measure the timeliness of data, but it certainly is an important component of data quality. The 2010 Census included 131 million addresses in the U.S.

If a long form had been sent in 2010 to 1 out of every 6 addresses as it was in 2000, there would have been roughly 21.8 million long forms completed for the 2010 Census. In contrast, the ACS is sent to 35 million addresses over a 10 year period.

The Census Bureau constantly reviews and improves our statistical methodology to ensure our estimates are as accurate as possible. In 2011, we revised our sampling methodology to increase the number of households in the survey in small communities such as Armstrong to help provide more stable and accurate estimates. Since the 2011 changes, the number of housing units selected in Armstrong City each year increased by approximately 35%. We continue to research other ways to improve the quality of small area and small group data.

Post-Hearing Questions for the Record
Submitted to Hon. John Thompson
From Senator Rand Paul

“2020 Census: Challenges Facing the Bureau for a Modern, Cost-Effective Survey”

April 20, 2015

1. While tabulating the 2010 Census, the Census Bureau counted members of the Armed Services, deployed for combat operations in Iraq and Afghanistan, at the respective servicemember’s home of record.

In the “2010 Census Federally Affiliated Overseas Count Operation Assessment Report,” dated March 19, 2012, it was stated, “only 59 percent of the 2010 Department of Defense records contained a home of record.”

As we have seen from the results of the 2010 Census, the use of home of record, provides an inaccurate accounting of populations residing in communities surrounding U.S. military bases. By producing inaccurate data, these communities, which support the families of our deployed servicemembers, do not receive the proper amount of allotted Federal funding.

To insure the accurate accounting of deployed servicemembers in the 2020 Census, what steps has the Census Bureau taken to collect accurate data? Do you believe the Census Bureau should account for deployed servicemembers at their residence at their last duty station to provide for an accurate accounting?

ANSWER: The Census Bureau works with the Department of Defense to enumerate deployed military. When providing their state-level counts of personnel (and any dependents) living outside the U.S. at the time of the 2010 Census, the Census Bureau asked the Department of Defense’s Defense Manpower Data Center (DMDC) to use the home of record designation in its administrative files to assign a home state. Home of record is generally defined as the permanent home at the time of entry or re-enlistment. When home of record was not available, we asked DMDC to assign a home state using the legal residence (the residence a member declares for state income tax withholding purposes) they had on file. If neither home of record or legal residence was on file, DMDC assigned a home state based on the individual’s last duty station. This approach is consistent with what we’ve done since 1970 when we began including overseas military in the apportionment calculation.

As with every decade, we must take stock of how society is changing and reexamine our residence rules and other procedures and processes to see if they are still the best way to conduct the decennial census. We issued a *Federal Register* notice on May 20, 2015 requesting public comment through July 20, 2015 on the 2010 rules to inform our 2020 decisions. We encourage input from as many people as possible to ensure the Census Bureau is well informed about how people interpret and define their living situations. The Census Bureau anticipates publishing the final 2020 Census residence rules in late 2017. We will not make significant changes or final

decisions about any of these rules without extensive discussions with our stakeholders, including the Congress.

